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NEW ENGLAND SURGICAL SOCIETY

SOME CAUSES OF FAILURE IN THE OPERATIVE TREATMENT OF INGUINAL HERNIA*

BY EMERY M. FITCH, M.D.†

THE failures of accomplishing a cure in the treatment of inguinal hernia by operation can well be classed among the tragedies of surgery. Oftentimes the surgeon meets with failure in his work because the nature of the disease he is called upon to treat is such that the results involve a gamble and he is on the losing end of the bet. This is notably true in advanced cancer, in a large number of intestinal diseases, in some simple surgical lesions complicated by incurable disease, and may be true in strangulated hernia, but should not be true in a premeditated clean case of inguinal hernia in which there is ample time for suitable preoperative treatment.

When a patient presents himself to the surgeon with a recurrent hernia and a story that this trouble began only a few weeks after he left the hospital, following what he had originally been led to believe was a simple operation, we begin to wonder if we are doing our best as surgeons, or is the whole scheme of operative treatment of hernia at fault. In view of the fact that postoperative inguinal hernias are not confined to any particular hospital, to any one group of surgeons, or to any one section of the world I have thought to analyze some of the reasons for these recurrences. To arrive at the causes of failure we must first look at the cause of the original condition.

In accordance with the long standing classification, inguinal hernia can be divided into two groups: indirect and direct. The indirect group presupposes a defect in development, and for this reason can be classed as congenital. The direct group comprises hernias which come as a result of the giving away of the muscular wall and are practically always acquired.

In the prenatal stage of development the testicle is in the lumbar region, just extra peritoneal. When it descends, beginning about the third month and ending about the seventh month in the scrotum, it takes along with it a covering of peritoneum. This peritoneal coat forms the covering of the cord and makes the tunica vaginalis of the testicle. As development of the fetus goes on, that part which covers the testicle becomes a distinct isolated sac enveloping only the testicle and epididymis. The part which covers the cord becomes thinned out, separated from the tunica vaginalis testis, and entirely disappears up to the level of the internal inguinal ring where it joins with the parietal peritoneum. When development has been perfectly carried out there remains on the inside of the abdominal wall simply a dimple where the blood vessels and vas deferens pass through the internal ring to make up the spermatic cord. This depression is the external inguinal fossa which is somewhat funnel shaped with the internal inguinal ring as its smallest part, thus inviting a hernia at the ring. If this process of fetal development were always perfect there would be little chance of indirect inguinal hernia, but in about 10% of individuals this development is not complete.

In some cases a diverticulum of the peritoneum remains, leaving a wide opening the entire length of the cord down to the bottom of the testicle. This is the true type of congenital inguinal hernia which is seen in very young children. In other cases the part of the peritoneum along the cord becomes practically closed, so that for a time the gut will not pass through the inguinal ring and a hernia does not exist; but sooner or later omentum or gut finds its way into the opening and a hernia results. This is just as truly a congenital hernia as the one previously mentioned. In a third group of cases, that part of the peritoneal process covering the cord becomes practically obliterated but is still in existence and here we have a potential hernia. All goes well with this class until the sphincter action of the internal ring becomes weakened, then a strain, a persistent cough, or traumatism of some sort forces the ring open and allows some of the abdominal contents to enter the top of this partially formed sac. The wedge thus started through the ring gradually or suddenly opens the preëxisting rudimentary sac and we get an acquired hernia, but one which to all intents and purposes is congenital, for no matter how late in life this kind of hernia appears, the predisposing cause is a matter of prenatal development.

The cause then of indirect inguinal hernia is

*Read at the Annual Meeting of the New England Surgical Society at Boston, September 26, 1930.

†Fitch—Surgeon-in-Chief Claremont General Hospital. For record and address of author see "This Week's Issue", page 76.

some imperfection of development at the internal ring or some force, gradual or sudden, exerted at the site of the external inguinal fossa. Whatever these factors are, the condition which will cure this type of hernia is a change in the fossa in such a manner that the force of the intra-abdominal pressure will be diverted from the open funnel which has been established at the internal ring. This can be accomplished in two ways: first, by treating the sac in such a way that the funnel will be removed; and second, by proper treatment of the muscles so that they will withstand the strain after the abdominal contents have been diverted from their force at the site of the internal ring, to the next place which they choose, the middle inguinal fossa.

The first requisite can be accomplished by proper treatment of the sac so that the funnel which points downward and inward through the internal ring is changed to a flat surface or even to a cone which points upward and outward away from the direct force of intra-abdominal pressure.

In treating the sac, therefore, of indirect hernia, the following steps should be carefully carried out. The sac is located, opened, emptied of its contents, separated from the cord up to and through the internal inguinal ring, care being taken to separate the parietal peritoneum well inside and all around the ring. The sac should then be tightly twisted until it forms a cord. This procedure frees it from the ring. It should now be pulled down firmly and crushed with a forceps. At the point of crushing it should be ligated with catgut, the ligature being fixed to the wall of the sac by needle puncture, not by transfixion, but at the side to prevent its slipping. The sac is amputated and the free end of the ligature cut off. The needle carrying the ligature is now carried in through the internal ring and upward and outward bringing the stump of the sac between the parietal peritoneum and the muscle; here it is fixed. This procedure does away with the fossa and by so doing diverts the intra-abdominal force downward and inward. It follows that if the operation has been done in such a way that neither inguinal ring has been damaged and the base of the canal has been fortified by proper treatment of the muscles a permanent cure will result.

The proper treatment of the muscle in indirect inguinal hernia takes into consideration several factors, dependent somewhat upon the findings in each case. The skin incision is the same in all cases. It should be made parallel to and about one inch above Poupart's ligament and should be of sufficient length to give free access to both inguinal rings. This incision is carried through fat and superficial fascia down to the fascia of the external oblique. The fascia of the external oblique should be carefully freed from fat for a width of at least one inch and thoroughly examined for separations of its fibers. If the hernia is large and of long standing there has followed a considerable amount of stretching of the fascia of the external oblique and there usually results at least one wide separation of its fibers. This separation being wider at the external ring extends backward in the shape of a long V toward the fibers of the external oblique muscle. In some cases there are as many as three of these separations, and it is obvious that if the fascia is not freed of fat these separations will be overlooked and oftentimes the fascia split in a strong rather than a weak part thus leaving and possibly adding to a preëxisting weakened condition.

The incision in the external oblique should be made in this separation, care being taken not to divide fibers which lie closely together. This fascia should be treated with care for it is a bulwark against the possibility of the occurrence of a direct hernia.

In small hernias, and in all cases where there has not been excessive stretching of the external ring so that its size is not materially increased and where there is no marked separation in the fibers of the external oblique, the external ring should not be cut.

The incision in this fascia should start about one-quarter to one-half inch above the external ring, thereby avoiding division of the intercolumnar fibers, and should be carried well beyond the internal ring allowing by its length sufficient separation to give free access to the internal ring, to the muscles forming the base of the inguinal canal, and to Poupart's ligament.

The external inguinal ring represents the attachment of a muscle and attachments of muscles are hard to repair when cut. Once the external ring is destroyed the lower abdominal support depends wholly upon the potency of the internal oblique and transversalis muscles and the conjoined tendon. If these structures have been strangulated by suture material in the operator's zeal for a strong apposition to Poupart's ligament, if too much tension has been put upon these structures in the sewing process, or if care has not been taken to get the stitches down to Poupart's ligament, this wrong treatment of the external ring at least contributes a strong factor toward a recurrence, or rather toward that new direct hernia which is not at all a recurrence of the original trouble, but a sequela of a poorly performed operation—poor because the surgeon has followed a poor technique; or followed a good technique poorly.

The method of treating the inguinal canal in indirect hernia is a matter of selection. In children, where the hernia is congenital and the sac is of the bottle type and where there has been no separation of the muscle by a large hernia, any attempt to suture muscle to Poupart's ligament is a hindrance rather than a help towards a cure. In these cases a short incision in the fascia of the external oblique, just over the

internal ring, without opening the external ring, followed by proper treatment of the sac without any damage to the sphincter action of the muscle forming the internal ring, is ideal as it results in a suitable firm external inguinal fossa which means no inviting funnel to receive abdominal contents and leaves the growing muscles in normal anatomical condition.

In an adult with long standing hernia where there has been wide separation of structures by stretching, some form of plastic operation must be done and that of Bassini has proven its merits for many years. Failures in this type of operation are more often due to the slack manner in which the operation is performed than to the type of operation itself. The factors which most often cause failure are: (1) incomplete removal of the sac so that a funnel is left inside the internal ring and a new hernia develops at the site of the old one; (2) improper suturing of muscle to ligament so that a direct hernia develops through the middle inguinal fossa.

DIRECT INGUINAL HERNIA

Direct inguinal hernia comes most often through the middle inguinal fossa and always is accompanied by a wide rent in the abdominal wall. This rent takes the form of a triangle which is bounded above by the lower edge of the transversalis and internal oblique muscles, below by the shelving edge of Poupart's ligament and the spine of the pubes, internally by the edge of the rectus muscle and the conjoined tendon. A cure of this type of hernia depends upon proper union of the abdominal wall above to the edge of Poupart's ligament. This is made difficult because of various reasons: Chiefly among these are; first, the natural tendency for the muscles forming the upper border of the triangle to pull away from the lower border; second, the histological fact that muscle fibers will not adhere to tendon even though held there by good suturing; and third, the forces from within which helped to produce the original hernia are still existing.

The sac of a direct inguinal hernia is much different from that of an indirect hernia. It has a broad base corresponding in size to the whole size of the triangle through which the hernia protrudes. Its walls are thick, sometimes almost leathery in character, especially so if the hernia is of long standing. It is so wide at the base that it easily admits the wedge from within which constantly forces it larger. In order to cure a direct hernia some means must be devised which will close the sac permanently and smooth out the exaggerated inguinal fossa. To neglect proper treatment of this type of sac is an invitation to a recurrent hernia. The peritoneum should be freed from the muscle all around the triangle thus allowing the sac to be pulled down and ligated high up. It is not possible to twist this sac as in the bottle type, which is found in indirect inguinal hernia, but the sac should be transfixed high up, ligated, amputated, and the stump sutured over and over with catgut. This stump should then be brought high up under the transversalis and internal oblique muscles and fastened. By this procedure the contraction of the stretched peritoneum practically obliterates the preëxisting pouching of the middle fossa.

To cure this type of hernia some form of suturing of the muscles to Poupart's ligament is obligatory and in order to get proper apposition of the muscle to the ligament transplantation of the cord is necessary. This means, therefore, that the Bassini operation is the best. The argument then is in relation to the kind of suture material to be used or the method of placing the sutures.

In a small direct hernia, after the sac has been disposed of, there will be little difficulty in securing proper apposition of muscle to ligament and here well-placed interrupted sutures of chromic catgut will hold the muscle closely against the ligament for sufficient length of time to get good union.

In long standing cases where the hernia has become large and a wide separation of muscle and ligament has resulted in a wide triangle there is sure to be difficulty in properly filling this space by any form of suturing alone. The mistake surgeons make in trying to effect a cure in these cases is by attempting to pull the ligament up to the muscle or to pull the muscle down to the ligament by suturing. The thing is easily enough accomplished at the time of operation, but in so doing the muscle fibers are strangulated by a tight suture, upon the least strain of the convalescing patient the suture cuts through, and the recurrence has really started before the patient leaves the hospital.

Possibly the best kind of suture material for this type of case is some form of living tendon.

In some hands good results have been obtained by tendons transplanted from the thigh (Gallie Method). Others object to this method on the ground that it consumes a lot of time, requires extensive exposure and is more subject to infection, which in itself will defeat any attempt at a radical cure of hernia. The method recently advocated by Hodgkins seems the best, but here again wide exposure is necessary in order to free the fascia of both recti muscles.

I wish to present a type of operation which does not depend so much upon suture material, which is simple in accomplishment, and which answers the physical laws necessary for the cure of direct inguinal hernia, that is, will allow the muscles to be drawn down to Poupart's ligament without tension.

The incision in the skin goes from the spine of the pubes to well above the internal ring. The incision in the external fascia begins internal to the external ring and goes high up so as to give a good exposure of the entire inguinal canal. Figure I.

After the hernia has been reduced and the sac treated the cord is lifted to one side and Poupart's ligament carefully exposed.

Interrupted sutures of chromic catgut are now placed in muscle and ligament and an attempt made to approximate the transversalis

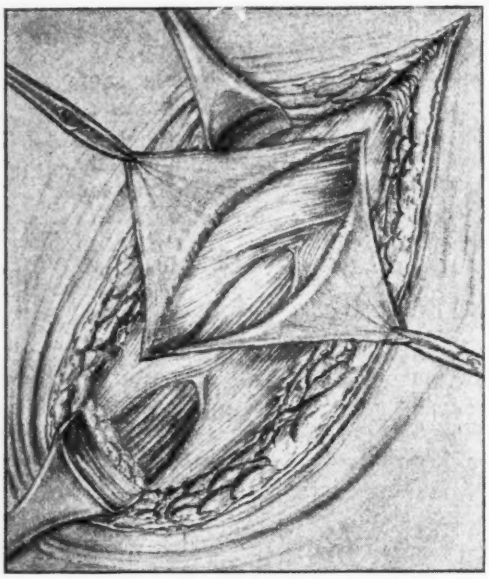

FIGURE I.

and internal oblique muscles to Poupart's ligament.

If the approximation is easy and is accomplished without undue tension the interrupted sutures are tied. If, however, difficulty is experienced in bringing these structures together the sutures are clamped with hemostats to be tied later. The fascia of the external oblique is then retracted upward and inward and separated from the internal oblique to the border of the rectus muscle. At the lower fourth of the rectus muscle, the fascias of the transversalis, internal oblique and external oblique all pass in front of the rectus, there fusing to provide a very dense fascia. The fibers of the internal oblique and transversalis aponeurosis run practically transversely but those of the external oblique run obliquely and it is not difficult to separate the latter from the two underlying. The separation of the external oblique aponeurosis from that of the internal oblique is therefore continued toward the middle line. Beginning at about opposite the internal inguinal ring the aponeurosis of the internal oblique and transversalis are cut through by an incision starting at the border of the rectus and traversing obliquely toward the middle line and downward toward the pubes, exposing the muscle fibers of the rectus, and thus allowing the fascia of the internal oblique to slip downward and outward. Figure II. The placed sutures are now tied and it will be found that the muscles approach and lie closely against Poupart's ligament without tension of the sutures.

The cord is then replaced and the fascia of the external oblique sutured as usual with a continuous suture of chromic catgut. The exposed surface of the rectus becomes covered by the aponeurosis of the external oblique and no weakened spot results. This operation is simple, requiring no special skill in suturing, and I believe will be satisfactory in the hands of the average surgeon.

Any discussion of the treatment of inguinal hernia would be incomplete at this time without some reference to the type of anaesthesia which should be used. Inhalation anaesthesia in this operation is surely a mistake. Very few patients come out of ether or the other forms of inhalation anaesthesia without some nausea and vomiting which puts undue strain upon an operation of the inguinal region. This strain causes pulling on sutures with the result that the muscle fibers are cut through or damaged to such an extent that a separation of muscle from tendon results before the fibroblasts can form.

In order for union to take place between mus-

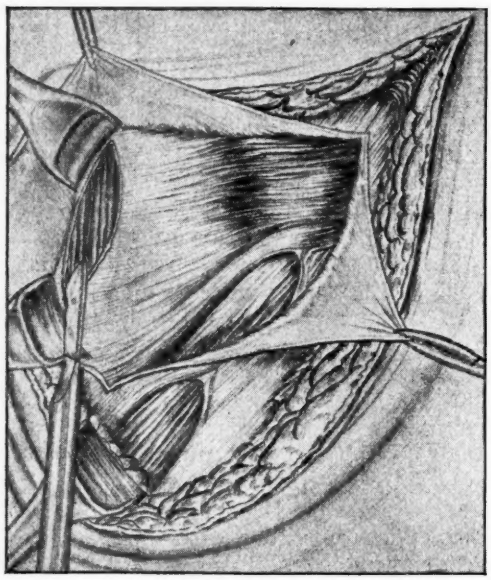

FIGURE II.

cle and Poupart's ligament there must be built up a connective tissue union of the fibrous components of the muscle and the fascia forming the ligament. There is a period of about four days before any appreciable growth begins and this growth is complete in from ten to fourteen days. Whatever ligature material is used, therefore, must serve the purpose of holding the muscle fibers and fascia together for four days without strangulation and must continue to act as a splint up to a period of fourteen days, which can surely be assisted by lack of muscle pull on the part of the patient.

The choice of anaesthesia should be either regional or spinal. If the hernia is small the work can be done perfectly under regional anaesthesia with novocaine. If the hernia is ex-

tensive, spinal anaesthesia gives a beautiful field in which to work without damage to the patient. Following either regional or spinal anaesthesia, sensation returns promptly enough so that undue strain will cause pain and the patient automatically protects himself against harm caused by struggling. Still another and perhaps greater reason why regional anaesthesia should be used is because it requires the surgeon to do more careful work. One great damaging factor in getting good results in hernia operations is the so-called "rat dissection" where the surgeon pulls the tissues apart with a gauze sponge over his finger thus completely traumatizing muscle fibers which he is going to sew to ligament and then expect to get union. If the operation is done under regional anaesthesia the dissection will necessarily have to be clean, for the tissues will resent mishandling, the structures will not be damaged and the healing process will begin more promptly.

In conclusion I wish to offer the belief that better results will be obtained in operations for inguinal hernia if the following facts are borne in mind:

1. Extreme care should be given to the treatment of the sac.

2. Both internal and external inguinal rings should not be disturbed in the process of operation. The internal ring normally has a sphincter action which is a bulwark against hernia if there is no sac protruding. The external ring represents the attachment of a muscle. Attachments of muscles are not easily repaired if cut and a division of these fibers tends to weakness at a spot which is naturally subject to direct hernia.

3. Direct inguinal hernias can be best repaired by a division of the anterior rectus sheath thus allowing easy approximation of the muscles to Poupart's ligament.

4. Anaesthesia should be regional or spinal.

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Discussion

Dr. Thomas W. Luce, Portsmouth, N. H.: As I understand the topic for this discussion to be "Some of the Causes for Failure in Obtaining Permanent Cures in Hernia Operations," I will confine myself to what I consider to be three causes not infrequently seen in the work of good surgeons. These are in order: failure to secure perfect asepsis; failure to secure perfect hemostasis; failure to keep the patient in the recumbent posture a sufficient time after operation.

Personally I don't believe that perfect asepsis can be attained with any part of the skin of the hernial region exposed in the field of operation. I think it of prime importance that this skin be entirely excluded from the field as a preliminary step.

We all know that subsequent operative oozing and the formation of even small blood clots may prevent perfect union and resisting power of the parts, in an otherwise good operation. I think that this secondary oozing is more apt to occur after the use of local than after a general anesthesia, so that, more particularly after local, extreme care should be given and time taken to ligate the most minute points of bleeding and so do one's utmost to avoid this secondary blood clot menace.

I was brought up with the teaching that all hernia cases should be kept in bed for three weeks after operation. I have always adhered to this plan and while it may be old-fashioned I have no regrets and have come to believe that it is a good rule.

The points made by Dr. Fitch seem to me entirely sound. His caution to avoid tension in the suture line and also to avoid the invitation to recurrence offered by the failure to free the sac high up and tie it off sufficiently high to avoid the little potential hernia often left, is particularly sound.

I am sure that Dr. Fitch should be complimented for his original drawings and the interesting way in which he has treated this troublesome problem.

President Cheever: There is no single step in the operative treatment of hernia that isn't a very proper subject for discussion and for differences of opinion, and I am sure there must be a great many men here who wish to express their views on this very timely subject. It is now open for general discussion.

I, personally, have been very much interested in hernia, as all of us of course have been. I always made a practice of teaching students the immense importance, in fact, the overwhelming importance of the complete extirpation of the sac, as Dr. Fitch has so justly emphasized. For a time it seemed to me that the Kocher procedure by which the sac with or without twisting is carried upward within the internal muscles and sutured there so as to completely obliterate any funnel, and if any such funnel existed to turn it upward rather than downward, was a good procedure. I then came to the conclusion that it really wasn't necessary and I made it a criterion of adequacy of removal of the sac, to dissect the neck of the sac up to the deep epigastric artery, which, of course, runs between the peritoneum and the fascia transversalis, at the level of which, if the sac is tied off you can be absolutely sure there is no funnel or pocket of the peritoneum left to form another pouch. I think that is a very good criterion.

At the Brigham Hospital there has always been a friendly difference of opinion as to what sutures to use in hernia. Following Dr. Cushing's example in his use of silk, which, of course, has been brought to Boston as a result of his association with Professor Halsted in Johns Hopkins, a great many hernias have been repaired with rather fine silk. I have always felt, while recognizing the fact that silk may be used with satisfaction in hernia or any other wound which is made with complete asepsis that in this particular operation it was less effective than catgut, especially in the step where we suture the internal oblique and transversalis muscles to close the inguinal canal, that is, the so-called free edge which we artificially create in our dissection. Rather than taking a very small delicate edge of those muscles and suturing it to the ligament with fine silk, it has always seemed to me wiser to take a large bulk of those muscles in order to approximate them over a broader surface, tying the catgut ligature entirely without tension in order not to strangulate the muscle fibers, and with the intention of getting an adhesion between the muscle and the ligament over a very broad surface. It has seemed to me that the results have been pretty good.

One of the interesting points that was raised not very long ago, was by Major Seelig, of St. Louis, who questioned whether the alleged adhesion of muscle fiber to ligament occurred at all. I think, if I am correct, that he came to the conclusion that the bare muscle fibers did not adhere to the ligament. I can only say it is my experience in reoperating on my own recurrences where I know exactly how I brought the fibers to adhere to the ligament, to find the muscle fibers very firmly and adequately united to the ligament.

I would like an expression of opinion from the rest of you about that. I think it is the feeling of most of us at the Brigham Hospital that catgut is preferable to silk in that respect.

Dr. Fitch: I would like to get somebody's opinion on the operative treatment of hernia in children. Formerly it was the practice to try to cure them with a truss, feeling that the sac would be absorbed and they would get a permanent cure. I would like somebody's opinion on what age should be adhered to firmly in the operative treatment of children.

President Cheever: Your question refers particularly to whether hernia in infants or children may be cured without operation, and how long we shall wait before operating.

Dr. William E. Ladd: To answer Dr. Fitch's question of the truss in children, I do not believe that a truss cures a hernia except temporarily. I think that we are practically all agreed that the most important factor in curing a hernia is getting rid of the sac. One gets the impression every now and again that a truss will cure a hernia from the fact that the sac gets slightly adherent and the hernia does not come down for quite an appreciable length of time. It is not very uncommon for a child on whom a truss has been applied, to remain apparently cured for a number of years. I have seen cases where the hernia has not come down for eight or ten years, and then recurs. I feel that a truss as a curative procedure for inguinal hernia amounts to very little.

The other part of Dr. Fitch's question of when we should do the operation, I think is a timely and important one. If one is able to handle the tissues as carefully as Dr. Fitch recommends, I see no reason why a hernia operation should not be done at almost any time; as young as you please. The danger of doing an operation for hernia in an extremely young child is the danger of rough-handling of the tissues and destroying the blood supply, causing atrophy of the testicle. It is our practice at the Children's Hospital not to perform a hernia operation in the first few months of life unless we are forced to do so. Of course, if a hernia becomes incarcerated or strangulated, we do not postpone operation. A strangulated hernia in a child is pretty rare. An incarceration is quite common, and if people will appreciate that the incarcerated hernia can almost always be reduced by the administration of morphia, the application of ice and elevation of the patient's feet, the number of cases of strangulation will be extremely rare. We have a good many cases of hernia sent to us with a diagnosis of strangulation. They are all put to bed, given morphia, an icebag, and the head of the bed is lowered. The patients in whom reduction is not accomplished are very few.

Patients who have had an incarcerated hernia reduced are operated on within a few days, regardless of age.

Infants with a hernia that is easily reducible have a yarn truss applied and operation is postponed until after the first summer.

I think that a good many people have had the impression that it is wise to put off the operation for hernia until the child is six or seven years old. This delay is certainly not necessary providing the surgeon handles the tissues gently and providing his nurses are instructed in the proper methods of keeping the wound dry postoperatively.

The question Dr. Fitch brought up about cutting the external ring interested me a good deal. I do not quite see the point in saving the inguinal ring, especially when it has been stretched so that it is very large. Overlapping the external oblique and bringing the internal oblique and transversalis to Poupart's ligament, seems to me to make the external ring smaller and it is a more secure form of repair than retaining a ring that has become large by stretching.

DR. F. B. LUND: I would like to know if the members of the Society have had any experience with the Gallie operation.

PRESIDENT CHEEVER: I think I might translate one of Dr. Ladd's remarks to the effect that he advises some surgeons to postpone operation on children until they are six or seven years of age, in the hope that the surgeon may have retired by the time the child reaches that age. (Laughter.)

Will somebody who has had some experience in the Gallie fascial repair technique speak of it in answer to Dr. Lund's inquiry?

DR. LYMAN ALLEN, Burlington: I have had no experience with the straight Gallie operation. I believe very firmly in the fascial repair of hernia, and I think if you make the incision in the external oblique a little longer, carrying it further out than usual, and then cut across upward from the outer end of the incision, and then come back parallel to the first incision, you have a strip of external oblique fascia which is attached at the base near the middle line and is tapered toward the point, a long enough strip to make three, four, or five stitches.

That can be threaded onto a Gallie needle, passed down through itself, and then through the conjoined tendon and Poupart's ligament so that the stitch reinforces that weak spot at its weakest point. If you should wish to do it again there is always external oblique enough to make another suture, but I don't think you will often need it. Beyond that the suture can be done with catgut.

That is not the Gallie operation; it is just a modification.

In connection with the yarn truss, I do not want it to be damned by everybody. All I can say is that I have two patients, thirty-one and twenty-nine who were both born with hernias. Both of them wore yarn trusses for about six months or a year, and neither of them has had a recurrence in this length of time. That does not prove that before they are eighty they won't have hernias, but it does prove that the yarn truss was useful certainly in those cases and that they have remained cured over a prolonged period of time.

DR. A. W. ALLEN, Boston: We have used Gallie repair in a very large number of recurrent and large direct herniae over a period of several years. Particularly in hernias that have recurred two or three times, where there is very little tissue that can be found suitable for suture, the Gallie repair is very satisfactory. We have been much pleased with the immediate end results, and aside from a few cases that became infected I believe the repair has held in practically all instances. Infection doesn't necessarily spoil the result but the recurrences that we have seen were in this group. Infection is more prone to occur in this type of operation because we usually work with two teams. We get our sutures from a foreign field, so to speak, and it is a good deal more difficult to maintain perfect asepsis. In addition to that, perfect hemostasis is not so easy to acquire in the recurrent field as it is in the primary field.

In regard to the modified McArthur repair of which Dr. Lyman Allen spoke, I believe that this technique has become quite general in the repair of primary inguinal hernia. I think that there are some dangers to this procedure, as I have seen three atrophied testicles following its use. I do not believe that this should condemn the operation, however, but added care should be used to allow room for the blood supply in the cord.

PRESIDENT CHEEVER: I should like to add to what Dr. Allen has said to Dr. Lund, that I think the fascia repair as perfected by Dr. Gallie, has given us one of the most remarkable methods in the treatment of hernia, especially, as Dr. Allen says, the recurrent hernia. I think it is remarkably successful.

Dr. Fitch, will you close the discussion?

DR. FITCH: Just a word in regard to this external ring. I think Dr. Ladd will agree that this refers more particularly to the type of hernia, especially in children, where there has not been excessive stretching of the external ring and it is a useless procedure to open the ring. You can just as well treat the sac through a short incision over the internal ring and there will be no damage done to the external ring. By opening the external ring you add a factor to the possibility of recurrent hernia. In those old cases where there has been a very large sliding hernia it is, of course, necessary to open the external ring.

NEW ENGLAND HEALTH INSTITUTE

THE CONTROL OF ARTHRITIS*

BY ROBERT BAYLEY OSGOOD, M.D.†

STATEMENT OF PROBLEM

A SON of the Middle West, living on the Eastern seaboard, was eager to have his old father see the ocean before he died. The son took his father on his first visit to a headland. His father was silent as he looked out over the watery expanse with nothing but the horizon line between him and Europe. The son finally said, "What do you think of it, Father?" The reply was probably a defense mechanism. "It isn't half so big as it might be."

The medical profession, faced with the prevalence of chronic rheumatism, has refused to be stirred by the size of the problem; perhaps as

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a defense mechanism against the attention which the problem deserves at their hands. Let us proceed from the general to the particular in discussing this problem.

Louis I. Dublin, statistician of the Metropolitan Life Insurance Company (*The Commonhealth*, vol. 16, no. 4, Oct., Nov. and Dec., 1929), estimates that the total yearly bill for preventable diseases in the United States is eight billion dollars and in Massachusetts perhaps three hundred millions. He makes the statement that "an annual expenditure of six millions may be expected to save these three hundred millions, and at the same time increase in unmeasured terms the happiness and prosperity of the people. There is no greater investment available to any organized community than an investment in good, well-balanced and executed Public Health Service." We may congratulate ourselves that in Massachusetts we have made a wise investment in "good, well-balanced and executed Public Health Service" so far as the personnel of the State Department of Public Health and Public Welfare is concerned. The needs of this personnel are resources in dollars and generous public-spirited backing from physicians and welfare workers and an understanding lay public. The spirit of our executives is so contagious that we believe they may safely count on this backing.

In a recent address to the Legislature, His Excellency Governor Allen recommended "that an intensive study of the aged sufferers from chronic disease be made . . . with the particular purpose of determining how far the insecurity of old age may be lessened by early diagnosis and treatment of cases of chronic illness."

Mr. Richard K. Conant, Commissioner of Public Welfare in the State of Massachusetts, has said (*The Commonhealth*, vol. 16, no. 4, Oct., Nov., and Dec. 1929) that "in the long run the greatest single cause of poverty is chronic illness. A conservative estimate of this factor is 20 per cent." A rough but still conservative estimate, according to Mr. Conant's figures* suggests that the state government, the governments of the cities and towns and the incorporated charitable hospitals are spending about nine millions of dollars every year for chronic illness. This large sum would perhaps be doubled if the cost of care and treatment and the loss of wage-earning capacity borne by the families of those suffering from chronic illness could be estimated. Dollars are dollars and *can* be estimated. Suffering is suffering and can*not* be estimated. Dollars are material and can be provided without loss of morale. Suffering is spiritual and unless relieved seriously endangers morale. Loss of morale is more serious than loss of dollars.

*Public agencies in homes	$2,000,000
State and city and town infirmaries	1,600,000
State tuberculosis sanatoria	1,000,000
20% expenditure general hospitals	3,800,000
Children's hospitals for chronic disease	500,000
	$8,900,000

The far-looking State Commissioner of Health, Dr. George H. Bigelow, puts it impressively: "I doubt if there is any more pressing problem in the whole field of medicine, sociology and economics today than that of chronic disease and who knows but what an unwise solution may threaten eventually the very foundations on which government in this country is based?" We must obviously think hard and think as straight as we can, for the problem demands solution, and, moreover, the public is beginning to cry audibly for its solution.

The Report of the combined Social and Medical Committees in the Survey of the nature and incidence of chronic disease in Boston (1927), made by the Boston Council of Social Agencies with Dr. Haven Emerson as consultant, revealed the fact that of the 4,316 cases discovered and studied, 58 per cent. occurred in persons under 60 years of age and only 42 per cent. in persons over 60 years of age.

As Dr. Herbert Lombard, Director of the recently organized State Division of Adult Hygiene, has said: "The outstanding public health problem of the present day is the control of the chronic diseases of the middle-aged." (*The Commonhealth*, vol. 16, no. 4, Oct., Nov., and Dec., 1929.) Undoubtedly the greatest amount of suffering is found among the aged subjects of chronic disease, but in order to relieve this suffering, we must concern ourselves not only with the present needs of the aged, but still more intensely with the causes of their morbidity and with the sound methods of their prevention. Mr. Joseph Lee's slogan of the Massachusetts Civic League is extremely pertinent: "Don't tie on the flowers, water the plants."

The recent House to House Survey organized by the State Department of Health and directed by Dr. Herbert Lombard, in the cities of Brockton and Greenfield and their surrounding rural townships, seems to show that nearly 10 per cent. of our total population is suffering from some form of chronic disease. The number of people complaining of rheumatism and arthritis in these communities is twice as large as those complaining of heart disease, 8 times as large as those complaining of tuberculosis, and 20 times as large as those complaining of cancer. Careful sample check-ups suggest that these percentages would hold throughout the whole state. In the Boston Survey of Chronic Diseases, 40 per cent. of the arthritic cases had existed for over five years, largely outnumbering the long period disabilities of any of the other more common chronic diseases. The frequent helplessness of these patients, their need of attendance, as well as their numbers, would seem to make them economically and socially the most important single group of patients with chronic disease.

Having proceeded from the general to the particular, it is apparent that the purpose of this paper is to bespeak the interest of this audience

in chronic arthritis and to suggest methods for the control of the disease, looking to a lightening of the load of individual suffering, of waste effort, and of the tax on the public and private purse for the relief of the disease.

This is not the place to discuss all the varied medical aspects of chronic arthritis. We believe that it may be of value, however, to state the conception which most careful workers now hold as to the two main types of the disease, their prodromal symptoms, and the broad general principles which underlie their sound treatment. This may help us to consider more intelligently methods of control.

An International Committee for the Control of Rheumatism was organized, three years ago, and an American branch of this committee, two years ago. It is made up of internists, surgeons and research workers who have individually been attempting to elucidate the problem of chronic arthritis. This American committee at the last meeting in Kansas City, in October, subscribed unanimously to the following statement as representing their concept of this group of diseases:

1. The disease Chronic Arthritis, prevalent in all temperate zones, represents one of the most important, if not the most important, of existing social and industrial handicaps.
2. The Committee conceives of the disease as a generalized disease with joint manifestations. Certain prodromes may be recognized and it is of vital importance that they be recognized.
3. It is the opinion of the Committee that at the present time no single infectious agent or any completely defined dietary deficiency or metabolic disturbance has been conclusively shown to be the sole cause of these disorders. The Committee inclines to the belief that any one of these factors, or certain combinations of these factors, under appropriate circumstances, may basically underlie the onset of the disease.
4. The Committee feels it of vital importance that the medical profession have its attention directed to the methods of treatment of proved value which are at present at its disposal. In spite of etiological uncertainties, the Committee feels that properly managed therapy, which takes into account both infectious and metabolic factors, has yielded results which encourage optimism and impose the obligation of further developing such methods.
5. In the light of the foregoing considerations, the Committee purposes to broadcast as widely as possible both to the profession and to the public its concept of the nature of the types of Arthritis included under the heading, Chronic Rheumatism, its belief as to the probable predisposing and exciting causes of the disease and the knowledge which the Committee possesses or may acquire as to the most efficient methods of treatment.

The following chart suggests the main differences between the two main types of chronic arthritis:

CHART SHOWING DIFFERENCES IN INCIDENCE, ONSET, SIGNS AND SYMPTOMS, ROENTGENOLOGICAL APPEARANCES, AND MORBID HISTOLOGY IN THE TWO MAIN TYPES OF CHRONIC ARTHRITIS, DESIGNATED AS ATROPHIC ARTHRITIS AND HYPERTROPHIC ARTHRITIS

	Atrophic Arthritis	*Hypertrophic Arthritis*
Common Synonymous terms employed in other Classifications.	Rheumatoid Arthritis. Proliferative or Ankylosing Arthritis. Arthritis Deformans. Poker Back Spondylitis Rhizomélique, Strumpel-Marie Type. Still's Disease, (Children).	Osteoarthritis. Degenerative or Non-Ankylosing Arthritis. Osteoarthritis of the Spine, Von-Bechterew's Syndrome. Malum Coxae Senilis.
Age— Incidence—	From infancy to middle life.	From middle life to death.
Body Type—	Somewhat more common in slender ptotic women and men.	Somewhat more common in stocky well-nourished men and women.
Onset	Acute to insidious.	Subacute to ignorance of presence.
Symptoms and Signs	General health usually not robust, fatigued easily. Pain and disability often pronounced. Joint swellings and muscle atrophy to be observed.	General health usually less disturbed. Pain and disability often slight. Joint swellings and muscle atrophy less noticeable.
Roentgenological Appearances. Early	No apparent cartilage or bone changes. General increased density of soft parts.	Slight "lipping" of articular margins. *No* general increased density of soft parts.
Late	Diminished density of bone Atrophy—No "lipping". Narrowed articular space subluxations—ankylosis.	Less diminished density of bone (unless long non-use). Articular space irregular, hyperostoses. *No* ankylosis.
Morbid Histology. Early	Early proliferation of synovial membrane—"pannus". Usually small round cell infiltration. Epithelioid Nests.	Early fibrillation of articular cartilage. *No* general proliferation of synovial membrane. No small round cell infiltration. Chondro-osseous hypertrophy of articular margins.
Late	Late destructive and atrophic processes in cartilage and bone. Fibrous, true, bone ankylosis.	Late Eburnation, Deformation, and hypertrophy of articular bone ends. Cyst-like cavities in cancellous bone near articular surface. Joint mice common—*No* true bone ankylosis.

We are employing the simple working classification adopted by the American Committee for the Control of Rheumatism. This may well be only a temporary nomenclature, but our knowledge is not yet sufficient for us to make an inclusively accurate etiological classification. On a pathological basis many names might have been employed, indeed, have been employed, but those adopted by the Committee for this working classification seemed to them to be as descriptive and contrastingly graphic as any, to be already in general use, and to be easily understood and recognizable by the general practitioner. Differentiation of chronic joint rheumatism or arthritis into at least two types is important for the general practitioner, for the details of sound treatment may differ in the two types, as would be expected from the very different nature of both the early and the late joint tissue changes in the two types.

If the concept of the American Committee for the Control of Rheumatism is true, then chronic rheumatism would seem likely to be prevented by cultivating the art of living in respect to the avoidance of overfatigue, the establishment of good body mechanics, an appropriate dietary régime, and the elimination of known sources of toxic absorption. The general practitioner should be equipped to be the best instructor in this art of living and the public should be educated and, if possible, induced to consult him often enough while they are in good health to check up on their needs and obtain this preventive instruction.

PRODROMAL SYMPTOMS

What are the prodromal symptoms of chronic arthritis? We should put first fatigue of body and mind, sometimes unrecognized by the patient, usually recognized by his family, and always discoverable by his physician if search for it is made. Easy fatigability is a frequent prodromal symptom of many chronic and certain acute diseases, but it is an almost constant precursor of atrophic arthritis, and fatigue of mind seems to prepare the soil quite as well as fatigue of the body. The "fatigue poisons" are elaborated presumably, at least in part, in the intestines and the early work of Cannon and Murphy has demonstrated the surprising effect upon digestion of emotional states.

The general practitioner who knows his families and sees their individual members from year to year may well recognize susceptibility. A tendency to rheumatism seems definitely to run in families. A thin, ptotic, constipated, asthenic 20-30 year old member of such a family who has been burning either the mental or physical candle at both ends may well be warned that atrophic arthritis is very likely in the offing, whether or not she has had intermittent joint swelling and discomfort.

A somewhat overweight, stocky man or woman over forty, who has been leading a sedentary life, taking too much food and too little exercise, or a man of the same type performing labor at 50 which would have been strenuous at 25, may well be advised to have an x-ray taken of his slightly uncomfortable knee joint, which grows better with exercise but is still a little stiff each morning. The middle-aged woman who notices that the end joint of one of her fingers is slowly enlarging should be checked up rather than ignored, for though it may give rise to no subjective symptoms, an early Heberden's node is an early hypertrophic arthritis and we conceive of both forms of arthritis as generalized diseases with joint manifestations. Body type susceptibility, therefore, should be recognized, as well as the ratio of pulling power to load and the relation of type of fuel to combustion demands.

In the prodromal symptoms and signs we should put last, foci of ill health. Dr. Fishbein has said that people may be divided into three classes: the rich, the poor, and those who have *not* had their tonsils taken out. We believe both the lay and professional public is awake, perhaps somewhat nervously awake, to the possibility of nasopharyngeal, sinus and dental foci of infection and ill health. We would not be understood to minimize their great importance, but we would suggest the possibility that they may be the *results* of ill health as well as the *exciting causes* of ill health. The story of the tonsil cases at Canton is illustrative of the point we are attempting to make.

At the Massachusetts Hospital School many cases are referred for tonsillectomy by the school physicians—some of these for tonsillectomy alone—and three or four hundred cases are operated upon each year and returned to their homes and schools. At one time there were 60 or 70 orthopaedic patients with bad tonsils who had to remain a long time at the hospital school, having been sent out before the infirmary was ready to receive them. These patients were recommended by their school physicians for tonsillectomy, as well as for their orthopaedic condition, and so far as the superintendent and his medical associates could ascertain, presented tonsils similar in appearance and symptoms to those sent out for tonsillectomy alone. When the infirmary was ready to receive them, these patients who had lived an out-of-door life, both day and night, and had had the high vitaminic food of that excellent institution, were reviewed for tonsillectomy. The operation was found to be apparently advisable in only a very small percentage of cases. Dr. Fish estimates this as not over 5 per cent. It has been the continuing experience at the hospital school that only a small percentage, not over 5 per cent., of more than 1500 orthopaedic patients entering with large and apparently pathological tonsils, show any indications for tonsillectomy after a stay of several months under the hygienic living conditions which this institution provides.

In our opinion, imperfect alimentation from too slow or too rapid passage of intestinal contents, or still more often, from inappropriate and actually deficient food intake, may predispose to arthritis quite as often as the so-called surgical foci. The output of this marvelous but still crudely understood chemical laboratory has become an unsuitable, if not an actually toxic pabulum, for the body cells and the intercellular substance when it reaches them by the medium of the blood supply.

In addition to possible food deficiencies, we must conceive of the possibility of endocrine deficiency as representing foci of ill health. We are on uncertain ground here because of the paucity of our knowledge, but a so-called menopause arthritis has been recognized for a hundred years. Moreover, prodromal symptoms and even early signs often entirely disappear upon the administration of thyroid gland products when the basal metabolism has been consistently low and a true thyroid deficiency has existed.

EARLY AND LATE JOINT CHANGES

We have seen in the lantern slides the early and late gross appearances and the joint tissue changes in the two main types of chronic arthritis. The early joint symptoms and signs may be intermittent and fleeting, but should never be ignored, for when they make themselves manifest, the generalized disease has usually existed for a considerable period and permanent joint tissue damage is at least threatened and may have already taken place. If harmful influences are removed, certain joint tissues, especially the synovial membrane, possess the power not only of repair but also of complete regeneration. Others, like the bone, may readily repair, but more rarely completely regenerate. Hyaline articular cartilage repairs with difficulty and, so far as we know, never completely regenerates after it has been injured or destroyed.

The early joint of atrophic arthritis shows usually a little spindle-shaped swelling, often a little heat and tenderness to pressure. Perhaps the midphalangeal and metacarpophalangeal joints of the hands are most likely to be affected first. The motion is somewhat limited and uncomfortable, but when the joint is at rest there is often no pain. The roentgenogram may show only the slight shadow of soft-part swelling, but usually the articular ends of the bones will reveal lessened density of trabeculation and a narrowing of the cortical shadow.

The early joint of hypertrophic arthritis may exhibit no signs and give rise to few symptoms unless pushed to excessive use or accidentally traumatized. The roentgenogram may reveal the little chondro-osseous spicules before one can palpate them, in even so superficial a joint as the knee. The patients may be entirely unaware of their presence. Even transitory stiffness on excessive use may be absent and a normal range of painless joint motion may be present.

The long existent joint of atrophic arthritis will usually present deformity, perhaps amounting to subluxation, a variable amount of swelling and heat, dependent upon the local activity of the disease, a limitation of motion varying from half the normal range to complete ankylosis. The roentgenogram will reveal not only atrophic bones of lessened density, but with their articular ends altered in the contour and diminished in size. These joints, unless the disease is inactive and repair processes have set in, almost never show any spiculation at the joint margins or any gross overgrowth of bone or calcium deposit.

The long existent joint of hypertrophic arthritis will present less gross deformity than the long existent atrophic joint. While its joint motion may be markedly limited, it will not be ankylosed. Unless it has been acutely lighted up, it will be puffy rather than swollen, tender usually only over the chondro-osseous spicules or ridges, with no appreciable difference in surface temperature. The roentgenogram will reveal joint changes often out of all proportion to joint symptoms. Unless the limb has been immobilized or disused, there will be no density of the shadow which it casts. At the joint margins and at the attachments of the tendons and ligaments, calcified overgrowths will be seen, and often in a joint with a large cavity like the knee, loose calcified bodies, the so-called joint mice. The articular ends of the bone are often notched, with thin but dense articular surface eburnation and cystlike cavities beneath the articular surface. A symmetrical destruction of the articular cartilage takes place, sometimes going on to complete absence of articular cartilage, but no bony ankylosis forms, as it does in the advanced joints of atrophic arthritis.

TREATMENT AND CONTROL

Before we considered the control of arthritis, it was necessary to inform ourselves as to its incidence, that is, the *need* for its control, and to outline its manifestations in order to be able to plan intelligently *methods* for its control.

This brings us, first to the question of treatment, concerning which volumes have been written and will still be written. We need today to discuss only broad general principles of treatment and I shall try to mention only those methods which have been rather generally accepted. If our concept of the two types is sound, we must combat a generalized disease as well as its joint manifestations. We must be on the lookout for the prodromal symptoms and signs which we have attempted to describe. They are not so definite as those of infantile paralysis, but as in poliomyelitis we watch for these prodromal symptoms because we are under the impression that convalescent serum may possibly do

good if given before the paralysis occurs, so, also, in arthritis, where the toll is a far heavier one, we should be on the lookout for premonitory symptoms. You can really be threatened with it. If one is threatened with it, and if poor health of the type we have described is discovered, with vague or definite joint pain, it behooves us to set our human houses in order at the earliest possible moment by seeing to it that:

(1) Fatigue and excessive nerve outgo are eliminated.
(2) Our bodies are well set up and are working on sound mechanical principles.
(3) The food fuel to run these machines is of the right sort and quantity and that the waste products of combustion and nutrition are regularly and completely carried off.
(4) Colonies of harmful bacteria, whether they represent cause or effect, be eliminated either by calling out the defense mechanisms of the body to gradually overcome them or by a direct surgical attack on their strongholds.
(5) An examination is made of the various systems of the body — alimentary, circulatory, nervous, endocrine, etc., looking to the correction of any dysfunction of these systems by rest, by exercise, by training in body mechanics, by physiotherapy, by drugs, by glandular substance, perhaps even by surgery.

When serious local joint symptoms present, and "the horse is out of the stable," we must still strive to arrest the disease by these same means, not by any single one of them, but by a combination of measures. It is not helpful to the patient to be told, after every known surgical focus has been removed, that he *ought* to be well even if he is not.

In the atrophic type the individual joints tend to become flexed and contracted. Prevention of deformity, of course, is demanded by splints and appliances if necessary. Muscles as well as bones tend to atrophy; voluntary exercise, then, in this type should be carried to the limit of easy toleration.

The affected joints of both types, but especially of the atrophic type, have diminished blood supply. Inadequate fluid exchange, Millard Smith calls it. Pemberton and Peirce have demonstrated this loss of capillary control by direct observations of the capillaries and by thermometric control experiments; therefore, heat and massage are called for as well as exercise. Protective walking apparatus to permit exercise is often quite worth while. And finally, when the disease is arrested, if the joint contractures and the proliferated synovial membrane still offer obstruction to normal joint function, surgery may step in and restore very satisfactory degrees of usefulness and wage-earning capacity. The largest number of the arthritic cripples are of the atrophic type.

Very little actual crippling results from the joint lesions of the hypertrophic type unless the hip joints become seriously involved. Malum coxae senilis does really cripple if both joints are affected. Deformity and contractures are not nearly so marked as in the atrophic type. The muscles show less atrophy. The process within the joint is less like an inflammatory process and there is less proliferation of the synovial membrane, less formation of adhesions, no tendency to ankylosis. Therefore, symptoms of joint irritation may be more safely treated by fixation and protective appliances in the hypertrophic type than in the atrophic type. Not only does such protection relieve the patients' discomfort, but it causes a subsidence of the signs of joint irritation, limited mobility, puffiness, tender chondro-osseous ridges, etc. One must see to it that it is not too complete or too continuous and that it interferes as little as possible with the blood supply, which should be stimulated artificially by local applications of heat and light therapy. In both types diet and elimination are immensely important. Each case is a somewhat individual problem, but a diet rich in vitamins and poor in starchy and sweet carbohydrates is a safe working rule, and we are less afraid of meat, red or white, if the amount is proportionate to the demands of activity. Milk is the most perfect of natural foods and the ripe citrus fruits seem to do good rather than harm. Overweight is to be avoided and the calories, in general, should be kept as low as possible to retain a normal weight.

Surgery has its place also in hypertrophic arthritis. Joint mice usually need removal and almost rigid hips need either to be made wholly rigid or reconstructed into less painful and more movable joints.

How may we begin to control chronic arthritis?

Methods of treatment, be they ever so sound, will not prevent this huge wastage of chronic arthritis unless there can be an awakening of the healthy population to the need for control as an economic problem and an awakening of those sick with arthritis to the possibility of betterment. We regret to say, also, that there seems to be a great demand for more information as to both need and methods on the part of the medical profession. One great insurance company has just issued a Primer on Rheumatism prepared with the coöperation of the American Committee for the Control of Rheumatism. This should help the laity and may conceivably help some of their doctors also. A recent book by Pemberton of Philadelphia, long a clinical and research biochemical worker in arthritis, might

well be digested by every general practitioner. The lay public, at least the suffering portion, is fast waking up. If the lay press reports a medical paper on arthritis, or a radio talk is given on the subject, the unfortunate reader is deluged by letters from all over the country asking if the cure has been found. Increasing the awareness of the lay public may very well need to be curbed until facilities can be provided for early diagnosis and treatment and the coöperation of the profession is assured.

These facilities would not now seem to be sufficiently available in Massachusetts, if the 1927 Survey of Chronic Disease made in Boston may be taken as a criterion of the conditions in other parts of the state. On a census day in October, 1927, over 16 per cent. of the cases occupying beds in the Boston hospitals for acute and general medical and surgical illness required continuation of treatment for at least three months longer and were, therefore, classed as chronic cases. On this day in October 1927, there were half as many patients who were classed as chronic occupying beds in hospitals for acute illness as the total number of beds in all the Boston institutions for the treatment of chronic illness. And all these chronic beds were already occupied. The agencies reporting to the Survey expressed the opinion that the greatest and most constant need of the aged chronic sick is for hospitalization at a rate within the means of the patient or his friends.

But although the need of facilities for the care of the aged sufferers from chronic arthritis is pressing, it must not obscure the still more important problem of the prevention and treatment of the early cases of middle life; the Civic League slogan again, "Don't tie on the flowers, water the plants." It may well be that if financial help through some channel, and after careful investigation, could be made available to the aged patients whose active treatment had been passed, adequate home care or hospitalization in existing institutions might nearly meet the situation of the aged. This necessary financial help should be a diminishing quantity if population does not rapidly increase and if proper diagnostic and therapeutic facilities could be provided for a review of the earlier and younger cases.

It would seem as if the facts and figures were definite enough to warrant recommending the prompt development of hospital facilities for this earlier group. These facilities do not now exist. We are of the opinion that such a hospital should be located in, or very near, a medical center in order to enable the State Department of Health to avail itself of the interested services of professional men who look upon chronic disease not as a chronic problem, but as an acute problem. There are too few of such men and we believe they are found in largest numbers in the centers of hospitalization and teaching. Professional men who are to attempt to direct the rehabilitation of potentially chronic patients, must be very human, very persistent, very alert, with ability to command the services of confreres who may be termed clinical specialists and laboratory workers.

It is, perhaps, too early to determine the exact number of beds that such a state institution should provide. Not less than a hundred, probably two hundred, with opportunity for expansion. In such an institution we believe ample provision should be made for a fairly complete physiotherapeutic equipment and for research in which clinical effort shall be closely linked with laboratory study. There should be space provided for out-patient follow-up clinics and for making available to the profession throughout the state, information as to the methods of proved therapeutic value. Such an institution might well be radially connected with several smaller and less elaborate observation and treatment centers throughout the state, which would serve as feeding and detective agencies.

Such facilities for attempted control should be in sight before too strenuous efforts are made to inform the lay public of the extent of the problem of chronic rheumatic disease which their commonwealth faces.

Could we control chronic rheumatism if all the facilities for its control were available? I admit to being an optimist, but I strongly believe that if these facilities were available, we might greatly lighten the huge economic and social burden of chronic arthritis. Another optimist, but a vastly more experienced optimist than I, believes that under favorable living conditions and with intelligent advice, the development of the disease in the majority of the prodromal cases may be prevented and the subject's wage-earning capacity be preserved; that in 75 per cent. of the early cases with joint symptoms and signs the disease may be arrested and permanently controlled with the salvage of much function and independence. If, with our present knowledge, 25 per cent. still baffle us and the appropriate combination of therapeutic measures still eludes us, we would all agree that three-quarters of a loaf is better than almost no loaf at all and we fear that far too many of even the early cases with joint crippling are at present living on very short rations. Would it not be a veritable economy for the state to provide facilities for the salvage of even a smaller percentage than this theoretical seventy-five per cent. and to be enabled to offer some measure of independence to its older and more crippled dependents? Is it not a humane as well as an economical duty to awaken its citizens, both lay and professional, to the nature and importance of the prodromal symptoms of chronic rheuma-

tism, to attempt to acquaint them with the toll which unhealthy living is taking in the many different forms of chronic disease which now handicap the lives of one-quarter of the population over sixty years of age? Then, perhaps, by example, if not by precept, the art of healthy living will be more generally cultivated. A vision, possibly, but vision must precede every accomplishment, and even this vision is only of what we might expect to be able to do today. But there is a tomorrow and who can tell what the tomorrow of research may bring forth in the way of prevention and more efficient control?

We believe we are justified in taking an optimistic attitude toward the possibility of controlling, to an economical extent, this group of diseases and of lessening by early diagnosis, treatment and research the insecurity of old age, a goal which His Excellency the Governor has convincingly declared to be desirable. The problem would seem to be sufficiently well defined for the state to attempt its solution. In such an endeavor the commonwealth must count, and can count, on the enthusiastic support of its informed citizens, both lay and professional.

MENTAL HYGIENE AS APPLIED TO THE COLLEGE FRESHMAN*

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IT is possible in this lecture to cover only in a very fragmentary way some of the more important concepts of mental hygiene. Several cases have been selected for illustration, and while some of these may seem extreme, they are all true; others, on the other hand, may appear too simple, but they have been chosen from a large series of cases with the hope that you may be able to identify yourselves in some way with the case under discussion. Unlike problems in the physical field, where, for example, one broken leg is generally the same as the next, in mental hygiene broken or injured personalities are similar only in a very general way.

One of the major principles of mental hygiene and the first to be discussed is adjustment.

ADJUSTMENT

The college freshman is required to make an adjustment to new surroundings and multifold adjustments to the complex problems arising in her surroundings. On the physical level, mankind is able to adjust to the most variant conditions; for example the Byrd expedition sailed from the temperate zone, through the tropics to the frozen regions of the Antarctic, where they lived for months in a previously uninhabitable region. On the physical level the Byrd party adjusted by providing themselves with special clothing, food, and equipment. On the mental level, Commander Byrd selected a particularly well-adjusted group—for it is apparent that the timid, the homesick, the irritable, the depressed, or the erratic, could not be efficient members of such a party.

Adjustment is constantly occurring in all of us in both physical and mental fields; for, on the physical level, if we walk rapidly, our hearts beat faster, our breathing becomes deeper,—both examples of physical adaptation and adjustment. Leaving home for college, living with groups in dormitories, the unfamiliar teaching methods used at college demand some degree of mental adaptation and adjustment.

In the following two case histories of sisters, one shows a successful adjustment to life and the other a failure to adjust to life.

In northern New Hampshire, in a farming hamlet on the slopes of the White Mountains, Pearl and Freda were born. Their father was a shiftless sort of a farmer who never had his fields seeded early enough, who allowed his farming equipment to rot or rust from neglect, and who was careless about his cattle and poultry with resulting losses from disease and death. Their mother in her care of the home was also careless and indifferent. The breakfast dishes might be piled high in the sink, the dinner unprepared, the beds unmade, but these did not disturb mother as she rocked in her chair at the kitchen window, reading the latest novel from the library.

Pearl, who was five years older than Freda, went through the grade schools and spent one year at the local high school. During her spare hours and vacation periods, she worked in the village as nurse girl, at housework, or at any of the other occupations open to her. When the high school principal noted her efforts, he arranged for her to go as a working student to a high grade seminary in southern New Hampshire. At the seminary Pearl made such an excellent scholastic record that she was admitted to a Massachusetts college, graduated, and is now a professor of mathematics in a New York college.

What are the secrets of Pearl's successful achievements? First, she threw off the handicaps of her own poor home training and adapted herself progressively to new environments,—in the homes of her employers, at the seminary, in college and later in her faculty position. Aware of the shiftlessness of her own homestead, her family's lack of education and culture, she compensated for these early influences by energetically facing her tasks, by seeking higher education, and by being meticulously neat and clean; she was social and independent. Even her choice for college majoring and later her professorship was mathematics, a subject which requires accuracy. Thus Pearl's success was due to her adjustment to changing environments and to compensation for the defects of her early training.

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On the other hand, Freda, Pearl's youngest sister, as the baby of the family was pampered and overindulged. She wanted attention and constantly sought love from the family.

Freda, unlike Pearl, placidly accepted the shiftless home and made little effort to progress on her own account although she had good intellectual ability. At the age of 16, through Pearl's efforts, Freda was admitted to the same seminary in southern New Hampshire that Pearl had attended. After finishing the seminary, she entered training as a nurse and at the end of a year she was asked to withdraw because she was untidy, inattentive to details, and careless with the patients. Next she went to college, taking a Home Economics course for four years, and graduated a year and a half ago. Since graduation she has had several positions and has been discharged from each because of carelessness, untidiness, and lack of punctuality.

Why has Freda failed? She has failed in her vocation because she has not adjusted to life on a different level from the one to which she grew accustomed as a child at home. Her present difficulties, summed up by her employers as carelessness, indifference to details, and sloppy appearance, are just a reflection of the home picture in which father lets the cows get sick while mother is too absorbed in her book to sew buttons on the children's dresses. Freda, unlike Pearl, does not compensate to these earlier home influences, does not correct in herself her injurious habits and does not adapt herself to changed environments.

About a month ago, the director of vocational placements of the college from which Freda graduated said, "Freda is one of the most difficult girls that I have ever had and I will not try again to place her until she shows an improvement." When these maladjustments were reviewed with Freda she said, "Yes, I understand what you mean, but those things apply to everyone else but me."

Two other case histories will further serve to illustrate the necessity of adjustment, and I think all psychiatrists agree that if the principles of mental hygiene could be included in a single word, that word would be *adjustment*. As further examples of adjustment and maladjustment let us consider Mildred and Mary, two friends. Mildred adapted herself to every change in environment and made progressively an adjustment to each step in her evolving life, while Mary, on the other hand, tragically failed in her major adjustments.

Mildred was born in a cross-roads village of a few hundred inhabitants in southern Illinois. Her parents were uncouth farmers and her childhood friends were destined to become farm hands or farmers' wives. Mildred wanted culture, education and special training, and by her own industry, earned the money to go two years to a state college. In order to acquire special training she came to Boston to attend college for a year. She passed her courses, was immediately employed, adapted and adjusted at every step in business and then came finally to marriage.

Mary, Mildred's friend, was carrying on a small business inherited from her father. She had taken courses at college but was slow at making adjustments. She easily fell back into the rut in which she had so long lived in her eastern Massachusetts town. About the time Mildred married, another boy became attracted to Mary. They were soon engaged, the date set for the marriage and then crash! came the maladjustment. Mary went into a panic, broke the engagement two weeks before the date of the marriage and fled into retirement.

If adjustment is the keynote of all mental hygiene instructions, is it possible to give a concrete list of definite instructions under the caption "Mental Hygiene"? In trying to answer this question a physician friend of mine who is a state commissioner of mental hygiene said to me recently, "Why can't mental hygiene be placed on the same basis as physical hygiene? In physical hygiene, we outline a system of directions such as nine hours' sleep, a balanced diet, regularity of meals, daily baths, fresh air at night, exercise in the sunshine, adequate clothing and recreation. Now, why can't there be a set of formulas in mental hygiene? Every list of aids to mental hygiene seems to consist of a set of platitudes."

I agreed with him that mental hygiene cannot be simplified to the extent of the physical as, for example, in dental hygiene, which exhorts "clean your teeth daily and have them examined twice a year".

If each member of this class were questioned about physical hygiene, it would be found that each one, whether she practiced the principles or not herself, was generally familiar with the routine instructions of physical hygiene. And again, each member of this class has learned from home, church, school and friends the general principles of mental hygiene which, as ordinarily presented to the layman, might easily be termed common sense rules for a healthy mind.

For example, from early childhood we have received certain instructions and prohibitions. The child is told, "Don't cry over that little scratch on the leg. Be brave," or if he is quarreling with his playmates, he is told, "Stop that fighting. You must learn to get along with your friends." If the child has tantrums, screams, kicks, lies on the floor and bites, he is spanked and warned not to do that again. He is encouraged to play, to be game, to be fearless, to accept defeat without discouragement, and to attain victory without over-evaluation of self.

Now, in the field of physical hygiene, there are few of us who will deny that we have made, and do make, errors; yet these errors in physical hygiene are apparent to us and because of their effects, we usually strive to correct them; for example, we have learned by experience that irregular eating may cause indigestion, and insufficient bathing, skin troubles. Thus in physical hygiene the effect of indiscretions are quickly tied up with their cause.

When the errors in mental hygiene, on the other hand, are considered, the comparison with physical hygiene ceases, for errors in mental hygiene may arise from subtle or perhaps un-

known causes, having their roots in early childhood. As an example of the obvious relation between cause and effect on the physical level, we may stay up until four o'clock in the morning, get three hours of sleep and have a headache during the day. In reviewing the cause of our headache, we will think, "I was up most of the night and didn't get my sleep. Nine hours of sleep are essential and hence I broke that rule for the last time, I hope." Now, in the field of mental hygiene, we may be badly adjusted without knowing the cause; for example, we may realize that we do not like to face realities and have a tendency to evade or escape. If we are introspective and try to analyze our reasons for not facing reality, we will not always be able to tie up our present behavior with its cause since the cause may lie far in the past in early training or it may be motivated by forgotten experiences in former surroundings.

HOME SITUATIONS

Difficulties in a girl's home may interfere with her adjustment at college. She may become depressed and anxious over situations which are impossible for her to solve, such as friction between members of the family, financial difficulties, religious differences, questions of separation or divorce between parents; these are only a few of the problems beyond the ability of a daughter to settle. In order to adjust to such difficulties as these it is necessary for the college student to understand that solution of such vital problems comes about slowly and that her worry over these situations increases the complexities of the family life.

For example, during her freshman year, Ann was troubled with the idea that she should be at home. To her classmates Ann seemed a happy girl whom nature had adorned lavishly with the gifts of beauty. She had an adequate allowance, attractive clothes, a host of friends and extensive social interests. She found the academic work at the college somewhat difficult, but after facing her academic situations, solved them and received a good average for the year's work. In spite of her achievements that should have pleased any well-adjusted girl, Ann was constantly perturbed and secretly unhappy. Would she continue her freshman studies, would she return for her sophomore year, was not the call to return home too great to ignore longer?

On analysis Ann's home conditions were disturbing and could easily perplex any girl. Her urge to return home was based upon fear that a calamity would occur during her absence. When she understood that her wish to be home was motivated by these fears and when she realized that her presence at home could not help the situation, she adjusted to college.

Lillian was also a freshman who, to the casual acquaintance, had not a care or worry. Smiling, energetic, social, she used every hour industriously. She worked summers to make part of her tuition, she worked at the college in order to have an allowance for current expenses, and she passed her courses satisfactorily. However, often in the quiet of her room, she became depressed, had "the blues" and wept.

On analysis, another family situation was disclosed. Her father was in financial difficulties, having lost heavily from a plunge in the stock market. Lillian feared that he might desert her mother for often he threatened, in the family's petty quarrels, to get out if matters were not to their liking.

During the interview, Lillian wept bitterly, repeating that she had no right in college, that she felt guilty about being there and that she should go to work to help the family. However, as the analysis proceeded, it became apparent to Lillian that the family's acute financial distress was caused by certain maladjustments in her father, a desire, for instance, to emulate wealthier acquaintances, to overestimate his financial abilities and to ignore realities if they did not agree with his wishes. Lillian could not reconstruct new patterns in her father, who was fifty, but, on the other hand, she was increasing the family problems by becoming maladjusted herself. Because she was unfamiliar with the circumstances that had progressively led up to the acute financial distress, she could not either interpret, evaluate or correct the conditions. Lillian's earnings if thrown into the family coffers would be merely a pitiful pittance. Her place, then, was at college where she was free from the emotional state of home and where she could prepare herself for her own life cycle and life work.

As in the previous case history of Ann, Lillian changed her attitude, reëstablished her original goals, and became readjusted.

Difficult home situations are an external cause of maladjustment in a college girl's life, for which the only help is a change of attitude on the part of the girl. Now we shall consider a maladjustment that arises within the girl herself and for which she herself is responsible; that is, daydreaming or phantasy formation.

PHANTASY FORMATIONS

Daydreaming is a normal process at the time of puberty or at about fourteen years of age. However, when carried into early maturity it interferes with adjustment, and it interferes with adjustment because daydreaming constitutes a form of escape from the world of reality about us into a world of make believe—a world where wishes come true. In the daydream, the individual leaves the reality, turns her thoughts inward and dwells undisturbed in colorful phantasies which, for the time being, convert the wish into an actuality.

For example, throughout early adolescence, Betsy fled from reality by escapes into phantasy. At high school, by the aid of books of fiction, she became steeped in the lore of college life and thirsted for the pleasures about which she phantasied. A student of average ability at high school, she dropped into the level of low mediocrity during her first months in the freshman class.

"I was disillusioned by college life," she remarked. "The girls there are not like the girls that I read about in my books. No, instead they are cats, insincere, liars, cheats and without principle. There is not a girl in the class that I feel could be a true friend." Unable to live in reality, to adjust to the normal individuals about her whom she misunderstood and misinterpreted, Betsy returned to phantastic thinking in which she was the heroine of her own dramas. When reality did press in upon her, she fled from reality by insisting that she was ill. This escape into illness was, of course, associated with her other mechanism of escape into phantasy.

"My eyes trouble me," she would complain. "I

cannot see to read my notes." Repeated examinations by a skillful oculist disclosed that she had better than normal vision in both eyes and no organic disturbance. Today Betsy, out of college, still uses illness as an escape, still lives in phantasy in order to avoid reality, and is unable to face the simplest economic situation.

In Betsy's case the daydreaming provided for her a world in which her own inadequacies did not count. When she accused the girls of her class with being "liars, cheats and a great disappointment," she raised herself above them, thereby increasing her own self-esteem. When she later complained of minor physical ailments, she was justifying herself for her inability to make the grade academically. This type of phantasy formation is, of course, common and particularly so with those who may feel inferior, but the commoner type of phantasy formation in girls is of a love nature and relates to wishes based upon the stories from fairy tales and novels. These daydreams often become a substitute gratification for sexual wishes.

Daydreaming of any kind is destructive and interferes with adjustment because the state of phantasy becomes so pleasant that there is gradually a growing inclination to allow these fictions to encroach on reality.

ESCAPE

While phantasy formation is one method of escape, evasions are a simpler and daily means of escape used to excuse us from something which we do not wish to do.

For example, the simpler escapes are such excuses as, "I didn't get my paper finished because my mother came to see me, but perhaps I'll have it finished tomorrow"; or, "The train was late"; or, "I'd like to do it very much but I won't have the time"; or any other of the lame protests that are erected in order to protect the self from blame or to avoid meeting situations.

For example, Ella was an average student who had difficulty in keeping up in academic work but at the same time had both tremendous possibilities in practical matters and a keen social sense. At college she scorned courses for which she was fitted and invariably chose abstruse subjects requiring intellectual abilities which she did not have. After two years of mediocre success in some subjects and failure in others, she was able, after an analysis of her difficulties, to choose a course suited to her special abilities.

Thus throughout college Ella evaded the truth of her own disabilities and attempted to cover up her deficiencies and exalt herself by trying to appear as a brilliant student with a heavy curriculum. When she faced the truth and no longer evaded it, she made a good adjustment to college.

In discussing the escape mechanisms, we have already observed that Betsy used phantasy as an escape from reality while Mary, in an earlier case history, was unable to face the realities of marriage, broke her engagement two weeks before the date set for the service and fled.

Escapes through illness have already been mentioned in Betsy's case where she used illness as an excuse for not studying or working. In less flagrant ways this mechanism is used by many as in the following case of Edna.

Edna was unprepared for a mid-year examination but still hoped to try it. Three days before the examination, she developed a severe headache and nausea that increased in severity, so that on the day of the examination she was a patient in the infirmary and therefore was excused from taking the examination.

Again, there is Georgiana who evaded examinations and sometimes classes by going to bed at each menstrual period. Sometimes she was given a special examination and sometimes excused when she was able to impress her teachers with the severity of her pains, or in slang, "when the old gag worked".

Many other examples of escape could be given but they seem superfluous for in every case history in this paper, escape mechanisms will be noted in some form. Escape from reality is, of course, the opposite of facing reality. Facing reality is one of the main pillars supporting the temple of adjustment and adjustment is the crux of mental hygiene.

INFERIORITY

Feelings of inferiority, a concept that includes feelings of unworthiness or inadequacy, are the basis of some of the more stubborn failures of adjustment. Feelings of inferiority may arise from any one of many causes, such as physical defects, lack of good looks, of clothes, of social position, or family background.

Tom, a pleasant looking boy of twenty-one, introduced himself to me as just out of college where he had spent two years. The college turned out to be the Massachusetts State Reformatory at Concord, but his history may well serve to illustrate basic feelings of inferiority. These feelings of inferiority and their causes were the key to Tom's behavior.

Tom was the son of immigrant parents. When he was two years of age, his father died and his widowed mother went out to work by the day. They lived in a poor section of Boston, in a crowded tenement block.

As a growing boy, Tom, who had a sturdy, strong physique, carried a chip on his shoulder and was ready to fight on the slightest provocation. Let any companion make any implication about social position, family or home surroundings and Tom took it as a personal insult and blows followed. At fourteen, while riding on a truck, he received severe injuries to his right upper arm when the truck collided with another automobile. After months in the hospital, he was discharged with a crippled arm that he could not raise over his head and that interfered with placement in gainful occupations. Unable to fulfill his wishes to own an automobile, he stole one, drove about town with the feelings of a plutocrat and then abandoned it when the gas ran out. He found that a few drinks of whiskey increased his courage and made him less fearful of the police and the possibilities of arrest. His larcenies and alcoholism became more frequent until finally he was arrested and sentenced on many counts.

If the mechanisms that led up to Tom's anti-

social behavior are briefly reviewed, we note the origination of feelings of inferiority socially and financially in childhood. The automobile accident, resulting in a crippled right arm, increased his previous feelings of inadequacy and inferiority by adding physical inferiority to the already long list. When he rode in the stolen car, he felt just as good as the fellow who owned it. Alcohol served to quiet his fear of arrest or punishment and served as an escape from unpleasant realities. At present Tom is having his first opportunity to compensate his inferiority and to adjust himself to his disabilities. This opportunity includes special physical training to strengthen his weak arm muscles and educational training that will enable him to earn a living at an occupation that does not require two strong arms.

In college life, feelings of inferiority raise havoc with the processes of adjustment. Unlike Tom, whose inferiority was almost insurmountable and whose reactions to these feelings were so excessive as to become anti-social, the feelings of inferiority among college students may manifest themselves in simpler reactions. For example, the student who dislikes or avoids the courses on spoken English or public speaking does so because of feelings of inferiority. She may insist that it is because she is self-conscious, reserved or timid. However, her behavior when in the class discloses the conflicts that are surging through her. If she forces herself to participate in the course, she is adjusting to her feelings of inadequacy and if she takes every opportunity to perfect her public speaking either in class or through the drama, she will compensate for her feelings of inferiority and bring about an adjustment.

Again, the student who feels out of place, awkward and self-conscious in the gymnasium class or who hesitates to throw herself into the class games is giving in to feelings of inferiority. She is usually the very girl who needs gymnastic exercises and if she allows her conflicts arising in feelings of inferiority to control her, then she is depriving herself of the best method of adjustment. The Greek orator Demosthenes in early maturity lisped and stuttered. He could have protested that public speaking was a futile occupation for him, that orators were empty demagogues, and he might have remained a crippled personality. Instead, he adjusted and compensated for his inferiority on the physical level by talking against the noise of the waves at the seashore with his mouth filled with pebbles.

The simpler protests to feelings of inferiority may be likened to the sour grapes attitude. Unwilling to make the adjustment to feelings of inferiority, the student may detract from the accomplishments of others. In their protests, for example, they may declare that dramatics bore them, that try-outs are silly, or that high scholastic grades mean nothing. Feelings of inferiority may be, then, a crippling maladjustment when they interfere with our progress.

DEPRESSED STATES

Feelings of inferiority produce great unhappiness and many times are the cause of depressed states or "the blues", which, in turn, disturb adjustment. When "blue ", pessimism, feelings of unworthiness and anxiety dominate us.

Gladys, for example, is depressed because she is anxious over the amount of work which she must make up after an illness of several weeks. At the same time, she is perturbed over a family situation involving her parents and brothers.

Marie, on the other hand, is depressed because she is in a series of conflicts over a home situation and also over her own love affair. At home, her mother, to whom she is devoted, objects to her smoking, to her English, to her friends and particularly to her indifference to religion. The family are active church members and Marie considers herself an atheist. Because of her views on religion there is much friction in the family.

Religious conflicts are a common source of depression in youth. For example, Alice, the daughter of a minister, became so depressed in college that she was unable to study. She was vainly seeking for some explanation of life which would answer these questions which she continually asked herself, "What does anything matter? Is life worth while if there is nothing after this?"

Depression, then, is an emotional swing downward and disturbs adjustment. If on the other hand, there is a discharge of pent-up emotions with an explosion, we have the tantrums.

TANTRUMS

Tantrums may be mild, limited to sulkiness, or severe, with screaming and breaking dishes. While the term tantrum is usually applied to the youngster's emotional explosions, the same mechanism is obvious in adults. If the child, for example, wants candy and is prevented by the parent from taking it from the nearby box, the child, depending on her training, may scream or kick until she gets the candy. Often children grow into manhood or womanhood with sensitive emotional states that react to even the slightest frustration with these same tantrums. Mother may have a tantrum when father brings guests home to dinner unexpectedly; father may have a tantrum when mother is not giving him all the attention he wishes.

Beatrice was a petted, spoiled child who, when five years of age, bit the nurse, broke the dishes and kicked the doors when she did not get what she

wanted immediately. The only daughter of wealthy parents, she was constantly indulged and after spending several years in an exclusive preparatory school, took the entrance examinations to a college much to her liking. As her grades were not high enough to admit her to this college, it was necessary for her to choose a college smaller than the college of her choice. When she received the report, there was fire in her eyes, she was mad, and told the family so in vigorous language.

After entering the smaller college, Beatrice constantly told her friends of her disappointment, became more emotional every time she thought of what had been done to her, and then started to hate her surroundings. She wept daily, ignored her studies, had fainting spells to the consternation of her family, and finally went home in a huff.

SEX PROBLEMS

Sexual conflicts may disturb college adjustment. Some of these sex conflicts may be unconscious, arising from conditions in early childhood and others are based upon ignorance of biological processes. As sexual problems are all individual and constitute a maladjustment in certain people only, further discussion of these problems will be reserved for personal interviews.

In conclusion, good mental hygiene should help us to live efficiently and happily. Mental hygiene means adjustment and adjustment means progress.

PSITTACOSIS*

BY GAYLORD W. ANDERSON, M.D.†

MUCH has recently been written about isolated cases of psittacosis and the literature has been thoroughly reviewed[1]. So long as so much uncertainty exists as to the exact mode of spread and the possibility of carriers among parrots or other birds, it seems worth while to put on record the following fifteen cases, presumably of psittacosis, which have been brought to the attention of the Massachusetts Department of Public Health.

Exact diagnosis being at best difficult and dependent largely upon the epidemiological findings, there is justifiable doubt as to whether all of these may have been psittacosis. We have included here those cases in which a diagnosis of psittacosis could be reasonably entertained. They are presented for what value they may possess toward the study of the disease.

The first cases occurred in December in Adams, four out of seven members of one family being afflicted within a few days of one another with an atypical pneumonia, characterized by high fever, slow pulse (around 90), moderate cough but without bloody or rusty sputum, and prostration out of proportion to the other clinical characteristics. A Mexican parrot purchased on October 15 (shipped by express from New York City) had developed, within two weeks after arrival, a diarrhoea which became increasingly severe up to its death on November 30. The onsets of the cases were November 23, November 29, December 1 and December 11, all sudden with chills but preceded by a questionable period of malaise. The contact between the family and the sick bird had been extremely intimate. All the patients recovered. Widals and stool cultures taken a month later were all negative. No other laboratory work was done.

On December 20, an Amazon parrot was purchased from store A by a family of four members living in Newton. A diarrhoea developing within forty-eight hours after purchase continued until death on January 11, being accompanied by drowsiness and lack of appetite. That same day the householder was taken ill with chills, headache and fever; his wife was similarly affected three days later. Both ran intermittent fever of 101°-103° for about ten days, but always with a pulse between 90 and 100, respirations not increased. There was no demonstrable pneumonic involvement. Prostration was out of proportion to the relative mildness of the clinical course. Widals and stool cultures in both cases were negative, also abortus agglutination; blood culture in one case was negative, blood counts 18000 and 12000 with normal differential, both in first three days of illness. The two children in the family, who had had more intimate contact with the parrot than had their parents, were not affected.

The most outspoken and most carefully studied clinical case occurred in a family of three adults in Lexington. An Amazon parrot had been purchased from store A on December 21, and died on January 17 after an illness of ten days characterized by diarrhoea, lack of appetite and drowsiness. All the family had had contact with the bird. The first case developed on January 18 and after three or four days of a grippe-like infection showed extensive pneumonic involvement. The predominant symptom was low backache, coupled with headache and extreme prostration. The temperature was 103°-104° for over a week, falling by lysis, pulse rarely above 100 and respirations only slightly increased. There was a slight cough but no sputum. Blood counts were about 12000; Widals repeatedly negative. Within two weeks, both other members of the family had developed illnesses of the same general clinical type, high fever, slow pulse, backache; one of these had a small area of pneumonia in the right lung. Convalescence in all three cases was slow.

An Amazon parrot purchased from the same store (A) on the same day by a lady in Boston died on January 16 of convulsions following a diarrhoea of ten days' duration. The roomer, whose only contact with the bird had been to

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occasionally stroke its head, was taken with chills and fever on January 24, developing a diffuse bronchopneumonia. The pulse was rarely above 100, sputum not rusty or blood streaked, blood counts about 8000. There was very little prostration and convalescence rapid. The landlady, who had cared for the parrot, was not affected.

On January 10 a woman of 48, living in Everett, was taken ill with "grippe", and died on January 26, the death certificate being signed typhoid fever, though a Widal taken on January 21 was negative. She complained principally of low backache and weakness. No areas of pneumonic involvement were discovered. A parrot had been purchased from store B on December 22, had a slight diarrhoea on January 24 and died on February 10 after progressive diarrhoea, drowsiness and lack of appetite. The other three members of the family were not affected.

On December 12, three ladies visited store B and selected a canary to be sent to a friend. While in the store they looked at one or two parrots which appeared ill: the canary was sent to the home and was never ill. Two of these ladies, as well as the lady to whom the canary was sent, who had no known contact with a parrot either sick or well, were taken ill within three days of each other beginning December 24. The day before the onset, they had visited among themselves and had kissed each other on leaving. All developed a high fever, persisting for ten days or longer and falling by lysis; the pulse was below 100 and respirations normal. All showed râles in the chest and one developed a distinct bronchopneumonia. Delirium and prostration were present in all cases. Widals and stool cultures were repeatedly negative; blood counts below 10,000. Convalescence was slow.

Early in March a new employee of store B, which sold the parrots connected with several of the above cases, as well as cases in Providence, developed an indefinite illness characterized by high temperature, pulse of 90-100, respirations 20-25, delirium, extreme prostration, cough with bloody sputum and râles at both bases but without demonstrable consolidation. The patient did not recall handling any sick birds, and the store managers denied the presence of sickness among their parrots. This man did not enter the employ of the company until the end of January, at least a month after the birds connected with the previous cases had been sold. He was the only new employee and the only one to become sick.

DISCUSSION

Whatever doubt there may be as to the correct diagnosis in all the above fifteen cases, it is our feeling that the disease was certainly psittacosis in those eleven cases in which there had been actual contact with sick parrots. It is to be regretted that no x-ray pictures of the chest were taken early in the pneumonia since the picture reported by Peterson, Spalding and Wildman[2] is said to be quite characteristic. Of particular interest are the cases among the three ladies, two of whom had visited a bird store and the third of whom had received a canary which was apparently in good health. On the basis of the clinical histories, these were considered by investigators of the United States Public Health Service to be cases of psittacosis. If this is true, it can only mean that healthy carriers exist among birds and that canaries as well as parrots may act as carriers.

In the course of our investigations, visits were paid to numerous bird stores. Two of these had sold birds which were responsible for cases of psittacosis. In one of these (B) the management was extremely hostile so that their denial of the presence of sickness among the birds or employees can hardly be considered reliable. The other store afforded the utmost coöperation, even reporting to us all suspected cases. Here again, however, there was no known illness among birds or employees. A third store was visited at which a history was obtained of sickness and death among newly acquired parrots, but without any cases among the employees.

The cases in Adams are of special interest inasmuch as the parrot which was connected with them was purchased before the arrival in New York of the shipment of birds responsible for most of the cases in the country. If these were in reality cases of psittacosis as seems to us probable, they show the presence of the disease among the birds being sold in this country prior to the outbreak subsequent upon the 1929 Christmas trade. All of the other birds involved were apparently part of the shipment which was distributed through New York and was responsible for cases of psittacosis elsewhere in the country.

Specimens of blood were obtained from seven of the fifteen patients, and agglutination reactions performed in the State Laboratory with B. psittacosis of Nocard. Although all of these specimens showed agglutinations in dilutions of from 1/20 to 1/40 the same reactions were obtained with blood obtained from four normal persons only one of whom had had any contact with parrots or cases of psittacosis.

SUMMARY

1) Brief clinical and epidemiological accounts are given of fifteen cases in which a reasonable suspicion of psittacosis was entertained.

2) Cases are presented suggesting the possibility that canaries may be healthy carriers of psittacosis.

3) Cases are presented suggesting the presence of the disease in this State prior to the sudden outbreak due to a special shipment for the 1929 Christmas trade.

REFERENCES

1 League of Nations Monthly Epidemiological Report 4, 141, 1930 (April).

2 Peterson, E., Spalding, O. B. and Wildman, O.: J. A. M. A. 95, 171, 1930 (July).

CASE RECORDS
of the
MASSACHUSETTS GENERAL HOSPITAL

ANTE-MORTEM AND POST-MORTEM RECORDS AS USED IN WEEKLY CLINICAL-PATHOLOGIC EXERCISES

EDITED BY RICHARD C. CABOT, M.D.
F. M. PAINTER, A.B., ASSISTANT EDITOR

CASE 17021

PAROXYSMAL DYSPNEA

MEDICAL DEPARTMENT

First admission. An unmarried Irish cook thirty-nine years old entered September 26, three years before her fourth and last admission, complaining of an oppressive sense of fullness in the chest of twenty-four hours' duration.

She gave a history of frequent respiratory infections. Twenty-three years before admission she had rheumatic fever. She had had asthma twice a year for two years and a half.

Three days before admission she came down with coryza, fever and considerable malaise. On the day before admission she raised foul nauseating sputum. Since that time she had been markedly dyspneic.

At admission her temperature was 103° by rectum, pulse 120, respiration 40. These abnormal findings lasted only two or three days. After that her chart was essentially normal during her entire stay in the hospital except for a slight elevation of temperature about December 23 due to an acute tonsillitis and a middle ear infection.

Physical findings. The findings in the chest varied according to the patient's condition. The lungs were essentially negative while she was comfortable, but during the attack asthmatic squeaks were heard throughout. Her heart was enlarged and showed a systolic murmur at the apex and base as well as a faint mitral diastolic at the apex. There was a slight suggestion of clubbing of the fingers.

Laboratory findings. The urine was negative throughout her stay. The blood picture showed leukocytosis at different times, a normal red count and a normal smear. The stools were negative. The sputa showed no tubercle bacilli on four examinations. An examination with the Fontana stain showed no spirochetes or fusiform bacilli and the Smith stain showed no evidence of chronic lung infection. Wassermann was negative. The non-protein nitrogen was 28 milligrams. An electrocardiogram was normal. The vital capacity was 1400.

X-ray examination showed both antra to be dull. There was a decayed molar with apical absorption. The transverse diameter of the heart was increased. The supracardiac shadow was normal. Both lung fields showed homogeneous dullness at the base, probably representing no pathologic condition.

A heart consultant suggested a southern climate in winter. A consultant from the Anaphylaxis Clinic considered the case to be one of bronchial asthma. The skin tests that he did were all negative. He advised a southern climate all the year around, also a clearing up of all possible foci of infection and centers of irritation.

Her course was a varied one. At times she was very uncomfortable because of her bronchial asthma and it was very difficult to give her relief. At other times she was much better. Two bicuspids were removed, also a large polyp on the right nostril. She became more comfortable and was in a very satisfactory condition at the time of her discharge to a convalescent hospital, January 6.

Second admission, February 20, six weeks after her discharge.

She reëntered from the convalescent hospital fairly well but not strong enough for work.

Examination showed a slightly enlarged heart with a blowing mitral systolic and a rumbling middiastolic murmur. The aortic second sound was markedly roughened and somewhat like a murmur, but no definite aortic diastolic murmur was heard. The lungs were clear and the lung borders at a slightly lower level than usual but with fairly good excursion.

The patient was given a neutral low calcium diet for six days, then put on acid sodium phosphate. Her general condition improved somewhat. At discharge, April 5, she was quite free from symptoms when resting or moving about. She returned to the convalescent home.

History of interval. After leaving the hospital she was well except for "asthmatic" attacks, especially at night, until October, a year and a half after her discharge. Then she caught cold and had malaise, weakness, dyspnea and precordial oppression. She was in a hospital for a month with a questioned diagnosis of possible bronchopneumonia. She was discharged well. A month after her discharge she reëntered the hospital with a return of dyspnea and precordial oppression following overexertion. She was in the hospital two months. After this she remained fairly well until the first of June, when her old symptoms returned, with severe precordial pain. She had frequent nausea and vomiting. She was troubled a good deal with asthma at night and was always orthopneic. June 8, the day before her third admission, on getting up in the morning precordial oppression and dyspnea became very severe. She had taken no digitalis for a week.

Third admission, July 9, two years and three months after her discharge.

On examination she was orthopneic, uncomfortable and slightly pale, with wheezy respiration. There were occasional squeaks throughout the lungs and fine crackles at the right base.

The heart was much enlarged. The apex impulse was in the axilla. The action was absolutely irregular. The blowing systolic murmur was heard at the apex, a faint inconstant mitral diastolic and an aortic diastolic. The blood pressure was 200/110 to 160/80. There was slight pitting edema of the ankles and over the sacrum. An electrocardiogram showed auricular fibrillation, rate 65, low complexes all leads, inverted T_1 and T_2. The blood was normal, Hinton and Wassermann normal.

X-ray examination showed a definite increase in the size of the heart since the previous examination. The chest showed accentuation of the hilus shadows and larger lung markings. Both antra were less radiant than normal.

During the patient's stay digitalis was stopped and resumed twice. She was fairly comfortable. The apex and radial pulses became approximately the same, about 96, though both continued absolutely irregular with fibrillation. August 15 she was discharged.

History of interval. She remained in bed for a week, then attempted to go about the house and do a little work. She then had cough with blood-streaked sputum, and after a few days a return of dyspnea and orthopnea and also sharp sudden pain over the left lower chest and flank on deep inspiration, relieved by strapping. With this she was feverish. She then remained in bed most of the time, still troubled with asthma, pain over the left chest, poor appetite and fitful sleep. For a few days before her fourth admission she had had some swelling of the ankles. She had taken 3 grains of digitalis practically every day.

Fourth admission, September 15, a month after her last discharge.

Physical examination. The heart was totally irregular. The blowing systolic was heard at the apex, but no definite diastolic. The second sound was rasping, loudest at the aortic area. The blood pressure was 140/48 to 200/95. The lungs showed sibilant râles in the upper chest, right and left, and fine crackles at both bases behind. The extremities showed slight edema.

Blood: 20,700 to 14,800 leukocytes.

Temperature 96.5° to 99.8°. Pulse 60 to a terminal 116. Respirations 19 to 32.

The patient was very miserable, coughing and wheezing. October 7 she died.

Clinical Discussion

BY RICHARD C. CABOT, M.D.

NOTES ON THE HISTORY

"Asthma" coming on as late as that at thirty-seven years of age in a case of one who is suffering from rheumatism makes us wonder if it was cardiac dyspnea occurring in paroxysms.

NOTES ON THE PHYSICAL EXAMINATION

If there is dullness at the bases and they do not think it is pathologic, what do they think? Presumably they think there was a high liver, which would relax the lung enough to make a difference in the x-ray shadow without there being any pathology above the diaphragm.

We have to consider what the discharge diagnosis at the end of the first admission probably was. Clearly there was asthma and probably mitral stenosis because of the apical diastolic murmur and the enlargement of the heart. I take it they thought that was perfectly well compensated and treated her wholly for asthma. The advice about the southern climate was given, I suppose, because of the history of antral trouble and upper respiratory infection. I see no evidence of any chronic lung process. There certainly was no tuberculosis.

The note about the low lung borders at the second admission relates to possible emphysema in relation to her chronic asthma.

That diagnosis of "possible bronchopneumonia" was a little more questionable than necessary.

From the note that she had taken no digitalis for a week I assume that she had been taking it, though it was not mentioned before. Asthma seems to have been the chief disease that they were treating.

The heart was much enlarged at the third admission. There must have been a change since the examination at the second entry.

There was "a faint inconstant mitral diastolic and an aortic diastolic". This is compatible with mitral stenosis in its late stages, which this probably is. Sometimes it is very hard to make out whether the diastolic we hear is at the mitral or the aortic area. It is hard to distinguish mitral pure from mitral plus aortic, because both give a diastolic murmur in about the same place, along the left border of the sternum.

Auricular fibrillation is a new point coming in since the last examination.

Summing up thus far we have: first hypertension, second, electrocardiographic changes and increase in the size of the heart. Mitral stenosis is never a cause of hypertension. She certainly has hypertension. We must say that some other process is going on besides the mitral stenosis. The changes in the electrocardiogram go well with coronary disease. They are not, however, limited to that. They occur in hypertensive heart disease without coronary disease.

This new pain in the left axilla suggests pleurisy. It does not seem like the pain in coronary disease. Especially with the fever, we are looking for signs of pleural effusion.

I should be very much surprised if both of those diastolic blood pressure records were right. We do not often see a record where the change is so enormous as that. A systolic pressure sometimes goes and comes from minute to minute according to exertion or emotion. Not so the diastolic. With such a diastolic report as that I believe there is a different method of recording in different cases. In the first case they were

probably recording the disappearance of the tapping sound. In the other case they were probably reading when the sudden change in quality from a tap to a dull thud occurred. Unless the same man does them both we cannot be sure that such measurements are comparable. They both show high pulse pressure, which makes us consider the question of aortic regurgitation quite seriously.

The lung examination gives no evidence of that pleurisy which we were led to suspect from the symptoms before the last admission.

It seems as if we ought to hear more about those last three weeks.

DIFFERENTIAL DIAGNOSIS

We have a patient with a rheumatic history and what is apparently asthma, so diagnosed by a first-rate examiner and believed to be independent of heart disease. There is evidence of a very large heart, which is not common in uncomplicated mitral disease. In mitral disease we often have a normal sized, almost small left ventricle. The heart seems very large, although we are not told about apex deviation in the electrocardiogram. In the heart itself we have, early in the case, evidence of what looks like mitral stenosis, later what looks more like aortic regurgitation, and on top of both an apparent hypertension. There are certain things to be said about those murmurs. In the presence of a very large heart, whatever the cause, Austin Flint observed that one may have a presystolic murmur without any valve lesion. Hypertension or nephritis with a very large heart sometimes show the Austin Flint murmur. We have every reason to believe she has that large heart.

It is possible that this murmur may be accounted for as the so-called "Austin Flint murmur," which means "without having any valve lesion". But that would not account for an early diastolic murmur such as is present here, or for the large pulse pressure. We have to recognize that one may get a large pulse pressure not only from aortic regurgitation but also from arteriosclerosis, which it is quite possible she had, though she seems rather young for it.

In addition to the condition of the heart, what ought we to predict in the lungs? We have no x-ray evidence on the question of asthma. I do not think that disease can be diagnosed by x-ray. They merely suggest that the lung borders seemed rather low at one examination. That might be due to emphysema as a result of asthma, from which she suffered. Asthma in itself has no pathologic anatomy. It is only its complications in emphysema, in inflammation of the bronchi and so on that we can recognize. Such complications are not obvious here. She had a leukocytosis at the end, the cause of which I do not know. We are quite prepared to believe it might be pericarditis, but that is now, as always, a pure guess. I thought before she came in the third time that it might be acute pleurisy. I cannot rule that out because she was not tapped. She may have had it, but there is no good evidence of it. It is always worth while to throw in bronchopneumonia on the chance. Almost anyone may have it. But there is no evidence of it here. The leukocytosis, which might go with it, is not in itself enough to suggest it.

She ought to have a big heart and especially a big left ventricle, but if she has mitral disease, which seems certainly quite probable, she could have a big left auricle and right ventricle too. So there may have been enlargement of several heart chambers. There is no good evidence of coronary disease. Inverted T in the first and second leads is not enough. There was no characteristic pain. A big heart, then, and enlargement of several chambers favor possible disease of the mitral and aortic valves, mitral stenosis and aortic regurgitation. For the rest, as far as I can see, we can say nothing but passive congestion.

A STUDENT: Could a small area of infarction dislodge emboli and cause the sharp pain without the areas showing on x-ray examination?

DR. CABOT: Yes. That is a good question. This is the kind of case in which infarctions are more than probable, and if present they can perfectly well cause pain. I am not sure where it would be. It might be in the spleen, the kidney or less probably the left lung. There was a little streaking of blood in the sputum, but we look for it in quantity with infarct of the lung.

A STUDENT: Would you expect relief from strapping with infarction?

DR. CABOT: No, that is against it. But I am going to say there was infarction just the same.

A STUDENT: Do you expect mitral regurgitation with this?

DR. CABOT: There are no signs by which I know how to diagnose mitral regurgitation. When there is mitral stenosis the valve is so rigid that it will not open completely. When we have made a diagnosis of mitral stenosis as an anatomic fact, we are bound I think to suppose mitral regurgitation too, not because of any physical signs, because there are none, but because of the anatomy of the condition. There must be some blood going back.

A STUDENT: Do you think she died of asthma or heart failure?

DR. CABOT: Why not say both?

DR. TRACY B. MALLORY: On the day of her death the blood pressure was 200/100, having gone up during the last five days.

DR. CABOT: Dr. Mallory reminds me to go back to the question of hypertension, which is not accounted for by any valve lesion. There is not enough evidence against the kidneys to say she had nephritis. I have been learning during the past two or three years that pathologists often find that "the kidney of hypertension" is

present when hypertension is present even though there is nothing in the way of clinical signs pointing to the kidneys. We have no means of telling the difference between hypertension with and hypertension without kidney disease unless the kidney disease is extreme enough to involve a good deal of disturbance of function. I do not see any evidence of that here. Apparently one can have anatomic changes characteristic of hypertension in the kidney without any disturbance of function or anything else we can put our finger on for diagnosis during life.

A Student: Do you consider this a rheumatic heart?

Dr. Cabot: Yes. It cannot be all rheumatic of course. There are two things, one rheumatic valvular disease, the other hypertension, which has nothing to do with that of course.

CLINICAL DIAGNOSES (FROM HOSPITAL RECORD)

Rheumatic and hypertensive heart disease with congestive failure.
Auricular fibrillation.
Paroxysmal dyspnea.

DR. RICHARD C. CABOT'S DIAGNOSES

(Asthma.)
Rheumatic heart disease; probably mitral stenosis and aortic regurgitation.
Hypertension.
Hypertrophy and dilatation of the heart, especially of the left ventricle, left auricle and right ventricle.
Infarction of the spleen or the left kidney.
Possibly bronchopneumonia.

ANATOMIC DIAGNOSES

1. *Primary diseases.*

Rheumatic heart disease.
(Hypertensive heart disease.)

2. *Secondary or terminal lesions.*

Bronchopneumonia.
Asthma.

Pathologic Discussion

Dr. Mallory: Autopsy seems to verify all your predictions. There was definite rheumatic heart disease in the form of mitral stenosis. With that there was dilatation of the left auricle and hypertrophy of the right ventricle, but the left ventricle was considerably bigger than it would have been simply from mitral disease, and we must assume hypertensive heart disease to account for that. The assumption is strengthened by the fact that the kidneys were slightly atrophic, and there was the slight degree of glomerular and arteriolar change which is usual in hypertension.

The lungs were somewhat more distended than normal and failed to collapse very much on removal from the chest, which is characteristic of either emphysema or asthma. There was no definite structural emphysema made out, however. The findings were consistent with a mild degree of asthma. We cannot make a diagnosis of asthma at autopsy except in a case dying in an acute attack. There was also a slight diffuse bronchopneumonia, probably the immediate cause of death.

There was one infarct, a very large one, in the spleen.

Dr. Cabot: Was the aortic valve normal?

Dr. Mallory: The aortic valve showed slight calcification at the bases of the cusps. That would go with arteriosclerosis, not with rheumatism. I do not believe that functionally the valve was much affected.

Dr. Cabot: Will you say a little more about this condition of the lung,—an asthma without emphysema?

Dr. Mallory: There was no true structural disease, not the kind of emphysema we see in elderly people. Structural emphysema is rare before fifty, but extremely common in people of sixty years of age and up. Anyone over sixty has some degree of it. In such cases the alveoli are uniformly somewhat larger than normal, and their walls are definitely thin. It is perfectly possible, for instance, to recognize structural emphysema in the face of massive collapse. The alveoli in such a case are not dilated of course, but the walls are folded in on each other and are very thin. Histologic examination of such cases shows marked loss of elastic tissue in the alveolar walls. In bronchial asthma one has functional dilatation of the alveoli which may be maintained after death and is due to spasm or some other form of obstruction in the bronchial tubes. Obstruction to the exit of air in the bronchial passages may be so great that even after the thorax is opened the lungs fail to collapse. The obstruction is usually well out in the bronchial tree, and one is forced to carry one's dissection down to the smallest bronchi and bronchioles before the alveoli finally collapse.

Dr. Cabot: But is there nothing anatomic to show?

Dr. Mallory: Not necessarily. I have seen two cases in which every bronchus and bronchiole was completely filled with grayish mucus of remarkable tenacity. Death in those cases results from a primarily mechanical form of bronchial obstruction rather than from any marked degree of spasm.

Dr. Cabot: Was it your impression that we had two factors in the production of death in this case, asthma and heart failure?

Dr. Mallory: Yes,—or rather we probably could give four. We have rheumatic heart disease and hypertensive heart disease. There probably was some degree of asthma up to the end, and certainly considerable bronchopneumonia.

CASE 17022

PAROXYSMAL NOCTURNAL DYSPNEA IN A MAN OF THIRTY-THREE

Medical Department

Presentation of Case

Dr. Edward G. Thorp*: This patient was a thirty-three year old native butcher. He came into the hospital on August 20 last complaining of weakness which had lasted for a year and a half.

Four and a half years before entry he was taken with a sudden right flank pain. It did not radiate, but was very severe. Morphia did not relieve it completely, and it lasted for three days. At that time he had red urine, probably gross hematuria. He had never had an episode of this kind before. Four years ago after shoveling snow he began to notice a dull pain in the left flank. From that time he had nocturia once to three times at night. About two years ago he had an attack of grippe with moderate fever, malaise, backache and headache. A year and a half ago he noticed dyspnea on exertion and slight edema of the ankles. He was referred to a doctor who made a diagnosis of heart disease. When the patient returned home he had to spend a week in bed. Gradually the edema cleared up and he went back to work. A year ago he complained of another period of weakness lasting two weeks. Then he went back to work. Nine months ago the edema and dyspnea gradually recurred, with paroxysms of nocturnal dyspnea in which he had to get out of bed and sit up fighting for breath. There were fifty-one days when he could not sleep at all. He was put on a milk diet at a hospital with a lot of sedatives. After a time he found that he could sit up comfortably. During the day he could lie flat, but the minute he fell asleep he would be seized with a paroxysm of dyspnea. He was irrational for two weeks. He was discharged with no edema and very much better. He gradually improved until he was able to go back to work as a butcher. Two and a half months before entry here his edema and dyspnea again gradually recurred, especially the nocturnal dyspnea. He returned to the hospital and improved very much. At that time they got him light work at a shop, but he found that even that was too much for him and after seven weeks had to give it up. He had nocturnal dyspnea again.

His past history is essentially negative. He had influenza thirteen years ago, whooping cough three years ago and gonorrhea one year ago. He gave a history of occasional dull ache in the substernal region and the left arm which did not distress him very much. It was not related to exertion or emotion, but usually came on when he was lying down at night.

*Senior interne on the East Medical service.

Examination showed a pale, pasty-faced man lying flat in bed. His pupils were unequal but reacted normally. His heart was greatly enlarged to the left. The apex was 4 centimeters to the left of the midclavicular line in the fifth space. The precordium was rocking. The sounds were fairly good, the action rapid, the rhythm regular. A short systolic blow was heard at the apex. His blood pressure was 190/130. There was a good deal of peripheral sclerosis. There was marked edema of the ankles and legs. The liver was down about two or three finger-breadths. There was slight secondary anemia,—hemoglobin 65 per cent, red count 4,900,000, moderate achromia, slight anisocytosis. The urine showed a trace to a large trace of albumin. The sediment showed three to five red cells and one to five leukocytes per field. A two-hour test showed the specific gravity 1.010 to 1.016. The night output was 1600 cubic centimeters and the day output 2125 cubic centimeters. The renal function was 15 to 20 per cent. The non-protein nitrogen at entrance was 56, falling to 28 and toward the end rising again to 66. The blood cholesterol was found to be 195 milligrams. The serum protein was 5.4 per cent before instituting therapy. The CO_2 combining power never varied much. It was 51.4 per cent at the end. The basal metabolic rate was plus 1, pulse 80, weight 62.7 kilograms. The electrocardiogram showed left axis deviation and nothing else.

His course in the hospital was disappointing from the first. He was digitalized, after which he had no attacks of pain, though he slept very poorly. He had great apprehension of these attacks. We could not get him to sleep. On the twenty-sixth he complained of a dull aching pain in the right neck. This radiated down the right arm. It was very difficult to determine how severe the pain was. He was given nitroglycerin with only partial relief. After digitalization the edema persisted. On the thirtieth he was started on 320 grains of alkaline mixture a day, increased to 800 grains a day by the fifth. The urine remained acid but showed much albumin and a few leukocytes until the sixth, when it was alkaline to phenolphthalein. It was felt that his diuresis should commence.

On the morning of September 7 he showed very much more edema. He had had a very poor night and had been mildly irrational. He required morphia twice. In the afternoon his wife came to visit him. At two o'clock he was sitting quietly on the edge of the bed talking to her. A few minutes later he felt faint and fell to the floor. When he was picked up he was dead.

Clinical Diagnoses (from hospital record)

Cardiorenal disease.
Arteriosclerosis.

Hypertension.
Chronic nephritis.

ANATOMIC DIAGNOSES

Vascular nephritis.
(Hypertensive heart disease.)
Hypertrophy and dilatation of the heart.
Coronary sclerosis.
Infarct of the heart.

PATHOLOGIC DISCUSSION

DR. TRACY B. MALLORY: The autopsy showed an extremely large heart, 775 grams, with a very definite infarct at the apex of the left ventricle. An adherent thrombus was present over the area of the infarction, and another in the right auricle. There was an infarct in the spleen, evidently embolism from the thrombus in the left ventricle. There was a marked degree of vascular nephritis. The kidneys weighed about 300 grams. The cortex was narrowed to about three millimeters, about half normal. The coronary arteries showed a considerable degree of sclerosis, very numerous atheromatous plaques, but we could not find any marked narrowing or suggestion of occlusion. The infarction that we found was almost completely organized and must have been present a matter of months I should say. We have had a few other cases of coronary sclerosis and infarction rather similar to this. Infarcts of the heart are more common in hypertensive people than in nonhypertensive people. On the other hand the type of hyalin arteriolar sclerosis which we find regularly associated with hypertension we do not ordinarily find in the arteries of the heart itself, even in very small ones. The type of change found in the coronaries is much more like the sclerosis which we get in the aorta which terminates in calcification. In normal-sized hearts in which an infarct occurs we have never had difficulty in demonstrating complete plugging of one of the arteries. In these very large hearts I have not infrequently seen infarcts where I could demonstrate no coronary occlusion. It has happened often enough so that I am inclined to think it is not a failure in technic. It is reasonable to suppose that a hypertrophic heart would demand more blood supply than a normal-sized heart. The coronaries, however, do not enlarge with the hypertrophy of the muscularis, and a relatively slight narrowing in a big heart may be more significant than complete occlusion in a small one.

DR. WILLIAM B. ROBBINS: Nothing was ever found to account for the pain in the right shoulder? That was eleven days before death. It was apparently not very severe.

DR. MALLORY: No, I do not think we found anything to explain that. There is a possibility that the pain in the left flank very early may have been due to splenic infarct.

DR. THORP: That was four years earlier.

A PHYSICIAN: What do you finally make the cause of death?

DR. MALLORY: It could perfectly well be heart failure, but I cannot rule out cerebral embolus.

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THE COOPER BILL H. R. 12995

IN the issue of this *Journal*, December 18, 1930, there was published a letter from Mrs. Aida de Acosta Breckinridge advocating the passage of the Cooper bill as designated in the heading above. Together with this letter there appeared the text of this bill.

We avoided comment on the bill for two reasons: first, because there is a division of sentiment in the Massachusetts Medical Society with respect to legislation of this character and second, since the Society has a committee authorized to deal with the problems of legislation we felt that this committee might wish to have its position made public in advance of editorial discussion. The bill was published for general information.

The attitude of the *Journal* has been called in question by Dr. William C. Woodward representing the American Medical Association in a telegram to Dr. R. B. Greenough, President of the Massachusetts Medical Society, with the suggestion that the publication of the letter and the text of the bill warranted the supposition that the *Journal* was supporting this bill.

Under the circumstances it may be well to discuss the bill touching only on some of its important features because a full analysis of the document would require too much space.

In the first place this bill is designed to carry on and augment the provisions of the Act founded on the Sheppard-Towner bill. We never approved the Sheppard-Towner bill. Some of the important requirements of the Cooper bill are the creation of a board consisting of the Surgeon General of the United States Public Health Service, the Chief of the Children's Bureau of the Department of Labor and the Commissioner of Education of the Department of the Interior. This board is given great and arbitrary power in the approval or disapproval of all plans relating to the coöperation of the National Government and the several states with respect to the prevention of disease and promotion of health among the rural population and also an additional five-year program for the promotion of the health and welfare of mothers and children. This last provision is apparently for the purpose of enabling the Children's Bureau to continue to function as before under the former act. Under the provisions for the development of local health units or organizations for the prevention of disease and promotion of health among the rural population the bill provides for appropriations in increasing amounts during several years of ten million dollars to be followed by annual appropriations of three million dollars. Under the provision of the program for the promotion of the health and welfare of mothers and children there will be appropriated during the five years specified, five million dollars more with no provision for the continuation of this five-year program. The question comes to mind whether the Children's Bureau will then be content with the work accomplished. From these sums of money five per cent. is to be taken for administration purposes. The grants or allotments to the several states accepting the provisions of this act must be met by appropriations of equal amounts by the several states. There are various controls governing the administration of the details of the bill which warrant careful study.

The arguments in favor of the bill are founded on the advantages accruing from better health of the people and the endorsement of the President, The Secretary of the Interior, The Surgeon General and The Children's Bureau. The objections as we see them are the likelihood of a growing paternalism in governmental activities, the assumption that states have neither the financial resources nor administrative ability to maintain effective public health programs, that some states should not be taxed to provide gratuities to other states, that the acceptance of the provisions of the act is a confession of weakness or a desire to buy a national gratuity, that the ultimate effect will be a lowering of the sense of state responsibility for its own health activi-

ties and that the whole scheme is a tremendous gesture looking toward national control of state functions and that it comes perilously near to the principle of the dole system on a gigantic scale with the only saving clause that the beneficiary state contributes an amount equal to that of the government grant.

Anyone who believes that this plan can be made a fair distribution of public money has a child-like credulity. If one believes in bureaucracy he should endorse this plan but if the lessons of the past with respect to economics of governmental bureaus mean anything the farther we keep from schemes like this the less occasions will be found for distrust of public officials.

The attitude of the medical profession toward so-called state medicine is one of the questions of the day and may arise under the operation of this proposed act, for while the profession is ready to surrender any personal prerogatives wherever it can be shown that benefit accrues to the people, the crowding of the practitioner out of his intimate relation to his patient is abhorrent, and the question will arise again and again. Will these vast sums of money be spent without the invasion of the field of private practice by doctors and nurses employed by these agencies?

Massachusetts has not endorsed this paternalistic scheme. She has the material and human resources which have enabled her to stand in the front ranks of this nation in caring for her dependents and promoting public health. Her doctors are loyal to the public health organization of the Commonwealth. What she has done other states can do without submitting their policies to a national board. We believe that the Government may well disseminate advanced information for guidance and leave to each state the responsibility for the execution of all public health measures which are not in conflict with national requirements. Each state should know how to meet its particular problems. If not capable, the responsibility rests with the people.

THE RECOMMENDATIONS OF THE STATE DEPARTMENT OF PUBLIC HEALTH

In the recommendations of the Commissioner of Public Health published in this week's issue there are two matters for legislative action of especial importance.

Both deal with preventive medicine. That for the pasteurization of milk has been urged repeatedly and if enacted into law will have definite effect on the incidence of septic sore throat and also those diseases which may be caused by infected dairymen or handlers. There have been striking illustrations throughout the country of the dangers incident to unpasteurized milk.

The requirement for the use of the tuberculin test in cattle is of great importance because as has been pointed out over and over again, about one-fourth to one-third of the cases of tuberculosis in some institutions are due to the bovine type.

The medical profession should stand solidly for the support of these measures. The opposition heretofore has been based on the alleged impossibility of providing milk free from danger of these sorts at prices within the means of the average consumer. The contrary has been demonstrated and if one would weigh the great economic burden of illness as compared with the slight added cost of wholesome milk the balance would be greatly in favor of pasteurized milk from healthy cows. Here again is the opportunity of the medical profession to strike hard against the invasion of disease. We hope that the facts will be presented to the members of the General Court by those physicians who can reach the individual member.

THIS WEEK'S ISSUE

Contains articles by the following named authors:

Fitch, Emery M. M.D. Dartmouth Medical School 1905. F.A.C.S. Surgeon-in-Chief Claremont General Hospital. His subject is: "Some Causes of Failure in the Operative Treatment of Inguinal Hernia." Page 49. Address: 19 Pleasant Street, Claremont, N. H.

Osgood, Robert Bayley. A.B., M.D. Harvard 1899. F.A.C.S. John B. and Buckminster Brown Professor of Orthopaedic Surgery, Harvard Medical School. Head of Orthopaedic Department, Boston Children's Hospital. His subject is: "The Control of Arthritis." Page 55. Address: 372 Marlborough Street, Boston, Mass.

Sullivan, Elizabeth A. M.D. Tufts College Medical School 1914. Psychiatrist, Coöperative Psychiatric Service. Consulting Psychiatrist, Wheaton College, Norton, Mass. Her subject is: "Mental Hygiene as Applied to the College Freshman." Page 62. Address: 383 Broadway, Cambridge, Mass.

Anderson, Gaylord W. A.B., M.D. Harvard 1928. Formerly Epidemiologist, Massachusetts Department of Public Health. Now, Assistant Director, Division of Communicable Diseases, Mass. Department of Public Health. His subject is: "Psittacosis." Page 67. Address: Room 546, State House, Boston, Mass.

The Massachusetts Medical Society

COMMITTEE ON PUBLIC EDUCATION

THE Committee on Public Education of the Massachusetts Medical Society, having been appointed to "procure the preparation of material for the daily press and for radio broadcasts on medical subjects, and to assume responsibility therefore in the name of the Society", and having organized for this purpose, is now in a position to invite Fellows of the Society to submit to it any papers which they may project for these publicity purposes.

The Committee will arrange to have suitable papers broadcast by the State Department of Health.

Accepted papers need not be presented by the author unless he wishes to do so. The broadcasting announcement will include, simply, the name of the person who reads the paper together with a statement of the auspices under which the paper is read.

Papers for broadcasting should be of fifteen minutes' duration (about 1500 words), and may be submitted to the Secretary of the Committee—Dr. Channing C. Simmons, 205 Beacon Street, Boston.

SECTION OF OBSTETRICS AND GYNECOLOGY

A. K. Paine, M.D. *Chairman* — **Fred. J. Lynch, M.D.** *Secretary*

M. F. Eades, M.D., *Clerk*

Will you please discuss the advisability of the induction of labor in cases in which the baby is viable, and the methods employed?

The late toxemias of pregnancy most commonly furnish the indication for induction of labor, after the child is viable.

When a toxemia with appropriate treatment does not improve and a possibility of an eventual eclampsia has to be considered, a prophylactic induction of labor is definitely indicated. In the nephritic type with a gradual and steady increase in the evidences of the affection, the possibility of a dead baby as a toxemia result per se coupled with the ever present danger of premature separation, will often make induction after viability a conservative procedure.

In the heart cases when only a prolonged stay in bed will maintain compensation, the wisdom of induction in advance of the expected date may be obvious. Heart cases have proverbially easy labors; the probability of an easy labor is enhanced by the smaller baby of prematurity.

The idea embodied in the above has been advocated as a treatment in the disproportion cases. With a small pelvis, induction of labor a few weeks early might, because of the smaller baby, permit of delivery from below. This procedure is not desirable; if the induced labor is unsuccessful and Cesarean has to be resorted to its dangers are markedly increased by the previous vaginal manipulation.

When induction has been decided upon in a given case, the procedure has to be considered.

Medication furnishes no dependable method of induction. If labor is imminent the time honored castor oil and quinine sometimes will start contractions, but it is practically useless in premature induction. The same may be said of small doses of pituitary extract.

When the element of time is not too important, simple rupture of the membranes is usually a satisfactory method of inducing labor. Occasionally a case after several days will show no signs of beginning labor. Rupture of the membranes is usually more quickly effective if done under gas oxygen anesthesia with at the same time manual dilation of the cervix in some degree.

The introduction of a rectal tube up between membranes and uterine wall for six or eight inches, coupled with a firm gauze pack of the cervix is a generally efficient method to induce labor. It has an advantage in that the resultant labor follows a generally normal course with no anxiety concerning a dry uterus for perhaps several days before labor begins.

The other method generally available is the use of the bag. It is positive in action but has a disadvantage especially in primiparous patients, in that it is apt to start a violent type of labor early in the first stage, which if prolonged with slow dilation may be unduly trying and exhausting to the patient. Attempts to relieve the excessive pain of the early first stage when the bag is used, may defeat its purposes. In multiparous patients less difficulty is experienced on this score. The bag may be wisely used to hasten or make more emphatic a labor induced by rupture of the membranes, or by the rectal tube, when such a labor develops poorly.

Questions of a similar nature to the above will be discussed in the *Journal* each week. They may be addressed to the Clerk of the Committee in care of the *Journal* and will be answered by members of the Committee of the Section of Obstetrics and Gynecology.

THE BOSTON MEDICAL LIBRARY

DR. PHILIP SYNG PHYSICK

1768-1837

IT is often remarked that the methods of selection of those who are permitted to enter upon the study of medicine are in need of revision. Some are induced to prepare themselves for it because it is an honorable calling and every family should have a few professionals enrolled. This attitude is particularly common where there has been, for many generations, a doctor in the family. Others are attracted to it be-

cause college or preparatory school friends have settled upon medicine and they think they will also undertake it. A much smaller number feel the urge to join the ranks because they see in it an opportunity to apply knowledge, the acquisition of which will enlist their best effort to useful and humanitarian ends. In the case of Philip Physick we have a young man who was constitutionally opposed to the study of medicine but who was absolutely loyal to the wishes of his parents. A maternal ancestor was a celebrated silversmith in Philadelphia and in the last years of Dr. Physick's life he expressed regret that he had not devoted his energies to that fascinating art. He was born on July 7, 1768, in Philadelphia. His father, Edmund Physick, was a native of England and his mother was a Miss Syng, whose father, the silversmith above referred to, had been a friend of Benjamin Franklin. His name appears on the register of the American Philosophical Society as one of its founders. He left a considerable fortune and seems to have been a highly respected citizen. At the outbreak of the Revolutionary War the Physick family moved from Chester County to an estate owned by the deposed Governor Penn. Philip Physick received his academic instruction in the "Friends Academy" and later entered the University of Pennsylvania as a classical student. So fond was he of these studies that they furnished him with a great deal of intellectual satisfaction all his life. After he obtained his degree in the Arts his father, contrary to his own wishes, arranged that he be apprenticed to Dr. Adam Kuhn, one of the most prominent practitioners in that section and one of those associated with the early history of the University of Pennsylvania's medical department. His introduction to the study of Anatomy so disgusted him that he besought his father to permit him to enter some other field but this being denied he applied himself to his medical studies. One of his first efforts was to commit to memory the whole of Cullen's First Lines of the Practice of Physic. At the age of 20 his father took him to London and placed him with John Hunter who was then at the height of his reputation as a surgeon. He was greatly impressed by a comment of Hunter's in response to the elder Physick's enquiry as to what books he should buy for his son. Hunter led them into his dissecting room and pointing to several dead bodies, said, "these are the books your son will learn under my direction, the others are fit for very little". He manifested so much skill in the dissecting room that he became a great favorite with Hunter and his assistant Home, so much so that Hunter exerted himself to secure for him an appointment to St. George's Hospital. It was considerable of a triumph at that time in England for an American to obtain an appointment in a London Hospital, the Revolutionary War having been so recently ended. He was subjected to a good many incivilities until he succeeded in demonstrating by his ability his worthiness for the position. In 1791 he secured his diploma from the Royal College of Surgeons in London. He then went to Edinburgh where after a winter's work he was given the degree of Doctor of Medicine from the University of Edinburgh. John Hunter made him an attractive offer to settle in London but his health had never been good there and he returned to Philadelphia in 1792. His father procured an office for him and put him on his own feet. Practice was so slow in coming that he had a good deal of time on his hands, some of which he spent in a library belonging to a Mr. Priestman. He confided his worries to this gentleman on one occasion with the suggestion that he would be glad to care for his medical necessities and those of his family for the sum of $20.00 per annum. This appealed to Priestman and he influenced several of his friends to do the same, which tided Physick over the lean years until the terrible epidemic of yellow fever invaded the town in 1793. In the emergency thus created he volunteered his services to the special hospital at that time provided to care for the sick poor. So great was the fear of the disease that it was necessary that Physick should be clothed with police authority in order to handle the insubordination that broke out on several occasions in the hospital. He was accordingly made an alderman. The Mayor, when he swore him in as an officer, would come no nearer Physick than it was possible for the voice to carry, so fearful was he of contracting the disease. After the epidemic was over Physick received an appointment as physician to the Philadelphia Dispensary and as surgeon to the Pennsylvania Hospital. A second epidemic of yellow fever visited Philadelphia in 1798 and again he was put in charge of the contagious hospital. He himself had the disease in both epidemics and when Typhus Fever was prevalent in the city in 1819 he contracted that also. Among numerous appointments which he received in recognition of his abilities and character the one to the Professorship of Surgery at the University of Pennsylvania in 1805 was perhaps the most important. In 1800 he married Miss Emlen, the daughter of a prominent Quaker. In 1836 he was elected an honorary Fellow of the Royal Medical and Chirurgical Society of London, a distinction which meant much to him as it was in that city that he laid the foundations of his success as a surgeon. In spite of frequent attacks of ill health from one cause or another all his life, he had the reputation among his contemporaries of being the foremost surgeon in America, where he had succeeded in keeping American surgical procedure abreast of the rapid advances that were being made in it by his British and continental confrères. While a house surgeon at St. George's he carried on some researches on the coagulability of the blood

which were suggested by John Hunter. In 1793, in conjunction with a colleague, he dissected several bodies of yellow fever victims, corroborating what had been suggested before by Dr. Mitchell in the Virginia epidemic of 1737, viz.; that the disease was definitely an inflammatory disturbance. The bearing of this upon the treatment was perfectly obvious and resulted in a complete reversal of the treatment which had been accorded this disease up to that time. He showed that success in controlling epidemics of this kind was dependent upon cleaning up the surroundings of the homes and wharves quite as much as in quarantine. In the purely surgical field he brought about radical changes in the treatment of certain joint diseases, particularly tuberculous disease and an improvement upon the methods employed in the management of ununited fractures. He was the first, or one of the first, to wash out stomachs in cases of poisoning. He was an advocate of the use of absorbable suture material and ligatures having observed the disadvantages of the use of silk and linen for these purposes. He therefore concluded that animal material, which he had noted was dissolved by the action of tissue fluids, might be serviceable for such purposes and all the later years of his surgical practice employed such material. He was wholly unaware that others had reached the same conclusion before his time. He employed wire and a double canula in the removal of tonsils and a modification of this same technique in the treatment of hemorrhoids. Like many who have been distinguished for what they accomplished he never enriched medical literature by personal contributions. Probably not over a half dozen of his papers are extant. His teachings were largely disseminated by his pupils. Unlike some who have shone in an operative way he shunned notoriety and never countenanced exploitation of his work. His fees were notoriously small and he often refused compensation altogether even where it was entirely appropriate that he should have charged well. The case of Chief Justice Marshall was one in point. He performed a lithotomy upon him for stone and removed a number that was estimated at a thousand. A perfect cure was achieved but he refused any compensation, though the Justice was amply able to pay and anxious to do so. He finally agreed to accept a valuable piece of plate. His professional fees in certain years amounted to $20,000 and he left an estate valued at more than $500,000. His association with John Hunter evidently impressed upon him the value of personal experience and he trained himself to add to his stock of knowledge from that source rather than from books, for he was not much of a student of medical literature. Always afflicted with poor health, his latter years were particularly trying though he forced himself to the performance of operations which he regarded it his duty to perform up to within a short time of his death which took place as the result of a hydrothorax on December 15, 1837, thus ending the career of one of the pioneer surgeons of America.

MASSACHUSETTS LEGISLATIVE NOTES

HOUSE—NO. 81

Accompanying the second recommendation of the Department of Public Health (House, No. 79). Agriculture and Public Health (jointly).

THE COMMONWEALTH OF MASSACHUSETTS

In the Year One Thousand Nine Hundred and Thirty-One.

An Act relative to the Sale of Milk.

Be it enacted by the Senate and House of Representatives in General Court assembled, and by the authority of the same, as follows:

Chapter ninety-four of the General Laws is hereby amended by inserting after section twenty-two the following new section:—

Section 22A. Whoever, himself or by his servant or agent, sells, exchanges or delivers, or has in his custody or possession with intent so to do, milk drawn from a cow, unless such cow has been tested within a period of one year by a tuberculin test, approved by the director of animal industry, and has been found not to react thereto, shall be punished for the first offense by a fine of not less than twenty-five dollars nor more than one hundred dollars, for the second offense by a fine of not less than fifty dollars nor more than two hundred dollars, and for a subsequent offense by a fine of fifty dollars and by inprisonment for not less than two nor more than three months. This section shall not apply to milk delivered or intended to be delivered for pasteurization nor to pasteurized milk as defined in section one, nor to milk from producers whose application is on file with the division of animal industry for an official test under the provisions of chapter three hundred and fifty-three of the acts of nineteen hundred and twenty-two.

This section shall take effect on the first day of January, nineteen hundred and thirty-two, in towns having a population of twenty thousand or more; in towns having a population of more than ten thousand but less than twenty thousand it shall take effect on the first day of January, nineteen hundred and thirty-three; and in towns having a population of more than five thousand but less than ten thousand, it shall take effect on the first day of January, nineteen hundred and thirty-four. This act shall apply to any town upon acceptance at a town meeting.

HOUSE—NO. 82

Accompanying the third recommendation of the Department of Public Health (House, No. 79). Public Health.

THE COMMONWEALTH OF MASSACHUSETTS

In the Year One Thousand Nine Hundred and Thirty-One.

An Act relative to the Penalty Clause of the Food and Drug Law.

Be it enacted by the Senate and House of Representatives in General Court assembled, and by the authority of the same, as follows:

Section one hundred and ninety-one of chapter ninety-four of the General Laws, as amended by chapter two hundred and twenty-eight of the acts of nineteen hundred and twenty-four, is hereby further amended by striking out in line two after the word "whoever" the words "for pay or otherwise delivers or offers to deliver to any person" and substituting in place thereof the words:—himself or by his servant or agent sells, exchanges or delivers or has in his custody or possession with intent so to do or exposes or offers for sale or exchange,—so as to read:—Section 191. Except as otherwise provided in sections one hundred and eight-six to one hundred and ninety-six, inclusive, whoever himself or by his servant or agent sells, exchanges or delivers or has in his custody or possession with intent so to do or exposes or offers for sale or exchange, any article or food or drug adulterated or misbranded, or which does not comply with the rules, regulations and standards provided for in sections one hundred and eighty-six to one hundred and ninety-five, inclusive, shall in the case of misbranding or noncompliance with said rules, regulations and standards be punished by a fine of not more than two hundred dollars, and shall in the case of adulteration be punished by a fine of not less than twenty-five nor more than two hundred dollars; but no article shall be deemed misbranded or adulterated under sections one hundred and eighty-six to one hundred and ninety-five, inclusive, or not to comply with the rules, regulations and standards provided for in said sections, if it is intended for export to any foreign country and is prepared or packed according to the specifications or directions of the foreign purchaser; provided, that no substance is used in the preparation or packing thereof in violation of the laws of the foreign country to which the article is intended to be shipped; but if the article is sold or offered for sale for domestic use or consumption then it shall not be exempt from said sections.

HOUSE—NO. 80

Accompanying the first recommendation of the Department of Public Health (House, No. 79). Agriculture and Public Health (jointly).

THE COMMONWEALTH OF MASSACHUSETTS

In the Year One Thousand Nine Hundred and Thirty-One.

An Act relative to the Definition of Pasteurized Milk.

Be it enacted by the Senate and House of Representatives in General Court assembled, and by the authority of the same, as follows:

Section one of chapter ninety-four of the General Laws is hereby amended by striking out in lines one hundred and twenty-six and one hundred and twenty-seven the words, "nor more than one hundred and forty-five," and inserting in place thereof the word:—two,—and by adding after the word "Fahrenheit" in line one hundred and twenty-seven the words:—or to such higher temperature for such time interval as the department may from time to time determine, — so as to read: — "Pasteurized milk," natural cow's milk not more than seventy-two hours old, when pasteurized, subjected for a period of not less than thirty minutes to a temperature of not less than one hundred and forty-two degrees Fahrenheit, or to such higher temperature for such time interval as the department may from time to time determine.

HOUSE—NO. 68

Accompanying the first recommendation of the Department of Mental Diseases (House, No. 67). State Administration.

THE COMMONWEALTH OF MASSACHUSETTS

In the Year One Thousand Nine Hundred and Thirty-One.

An Act relative to the Performance of Certain Duties of the Commissioner of Mental Diseases during his Absence or Disability.

Be it enacted by the Senate and House of Representatives in General Court assembled, and by the authority of the same, as follows:

Section four of chapter nineteen of the General Laws is hereby amended by inserting after the word "prescribe" in the sixth and seventh lines the following:—, except that the commissioner, with like approval, may designate another person or persons in the department to perform, during such absence or disability, such specific duties as the commissioner may prescribe, and may revoke such designation, —so as to read as follows:—Section 4. The commissioner shall be the executive and administrative head of the department and may organize therein such divisions as he may determine. He may, with the approval of the governor and council, appoint and fix the compensation of an assistant commissioner, who shall discharge the duties of the commissioner during his absence or disability and perform such other duties as the commissioner may prescribe, except that the commissioner, with like approval, may designate another person or persons in the department to perform, during such absence or disability, such specific duties as the commissioner may prescribe, and may revoke such designation. The commissioner shall appoint and may remove such agents and subordinate officers as the department may deem necessary, and shall fix their compensation. Physicians, pathologists and psychiatrists shall be exempt from chapter thirty-one.

HOUSE—NO. 83

Accompanying the fourth recommendation of the Department of Public Health (House, No. 79). Public Health.

THE COMMONWEALTH OF MASSACHUSETTS

In the Year One Thousand Nine Hundred and Thirty-One.

An Act to provide for Promoting the Cure, Alleviation and Prevention of Rheumatism.

Be it enacted by the Senate and House of Representatives in General Court assembled, and by the authority of the same, as follows:

Section 1. The department of public health, hereinafter called the department, is hereby authorized and directed to formulate a plan for the care and treatment of persons suffering from rheumatism and allied chronic conditions, with a view to taking any necessary initial steps toward the establishment of necessary hospital facilities for such care and treatment by the construction of new hospital buildings, by the use of existing buildings, or by additions to existing buildings. The department shall, as soon as practicable, submit such plan to the governor and council for approval.

Section 2. The department shall establish and organize, with the coöperation of municipalities, local physicians, or other appropriate agencies, clinics in such parts of the commonwealth, as well as in any hospital authorized in section one, as it may deem advantageous to the public health; said clinics shall be conducted to aid in the diagnosis, treatment and prevention of rheumatism and allied chronic conditions, and in educating the public in regard to the control of the same diseases.

HOUSE—NO. 69

Accompanying the second recommendation of the Department of Mental Diseases (House, No. 67). Legal Affairs.

THE COMMONWEALTH OF MASSACHUSETTS

In the Year One Thousand Nine Hundred and Thirty-One.

An Act providing for Investigations as to the Mental Condition of Persons held for Trial where the Offence charged is Punishable by Life Imprisonment.

Be it enacted by the Senate and House of Representatives in General Court assembled, and by the authority of the same, as follows:

Section one hundred A of chapter one hundred and twenty-three of the General Laws, as inserted by chapter four hundred and fifteen of the acts of nineteen hundred and twenty-one, and as amended by chapter three hundred and thirty-one of the acts of nineteen hundred and twenty-three, by chapter one hundred and sixty-nine of the acts of nineteen hundred and twenty-five, by section one of chapter fifty-nine of the acts of nineteen hundred and twenty-seven, and by chapter one hundred and five of the acts of nineteen hundred and twenty-nine, is hereby further amended by striking out in the second line the words "a capital offence" and inserting in place thereof:—any offence punishable by death or imprisonment for life,—so as to read as follows:—Section 100A. Whenever a person is indicted by a grand jury for any offence punishable by death or imprisonment for life or whenever a person, who is known to have been indicted for any other offence more than once or to have been previously convicted of a felony, is indicted by a grand jury or bound over for trial in the superior court, the clerk of the court in which the indictment is returned, or the clerk of the district court or the trial justice, as the case may be, shall give notice to the department of mental diseases, and the department shall cause such person to be examined with a view to determine his mental condition and the existence of any mental disease or defect which would affect his criminal responsibility. Whenever the probation officer of such court has in his possession or whenever the inquiry which he is required to make by section eighty-five of chapter two hundred and seventy-six discloses facts which if known to the clerk would require notice as aforesaid, such probation officer shall forthwith communicate the same to the clerk, who shall thereupon give such notice unless already given. The department shall file a report of its investigation with the clerk of the court in which the trial is to be held, and the report shall be accessible to the court, the probation officer thereof, the district attorney and to the attorney for the accused. In the event of failure by the clerk of a district court or the trial justice to give notice to the department as aforesaid, the same shall be given by the clerk of the superior court after entry of the case in said court. Upon giving the notice required by this section the clerk of a court or the trial justice shall so certify on the papers. The physician making such examination shall, upon certification by the department, receive the same fees and traveling expenses as provided in section seventy-three for the examination of persons committed to institutions and such fees and expenses shall be paid in the same manner as provided in section seventy-four for the payment of commitment expenses. Any clerk of court or trial justice who wilfully neglects to perform any duty imposed upon him by this section shall be punished by a fine of not more than fifty dollars.

HOUSE—NO. 7

THE COMMONWEALTH OF MASSACHUSETTS

PRELIMINARY SPECIAL REPORT OF THE MASSACHUSETTS DEPARTMENT OF PUBLIC WELFARE RELATING TO CRIPPLED CHILDREN.

December 1, 1930.

To the Honorable Senate and House of Representatives.

The Department of Public Welfare presents a preliminary report of its survey of crippled children, and

asks for further time in which to file the complete study. It is not likely that any legislation will be recommended at this session of the Legislature by the Department as a result of this study.

In order to make this survey of crippled children in the State, which was recommended by the Governor and authorized by the Legislature in 1929, and continued by the Legislature of 1930,[1] the Commissioner appointed as director of the survey, Dr. John E. Fish, Superintendent of the Massachusetts Hospital School at Canton, and as an advisory committee the following persons: Dr. Richard C. Cabot, chairman, Dr. W. L. Aycock, Rev. George P. O'Conor and Dr. James W. Sever. Miss Margaret MacDonald, R.N., was appointed Assistant Director and Field Investigator, and, with Miss Margaret Ridlon to assist her, carried on the investigation.

This survey is not to be regarded as an attempt to enumerate all children with physical defects which ordinarily are classed as crippling; hence the figures are not to be compared with such as might be obtained by the routine examination of all children and the recording of every physical defect found. Surveys of crippled children have generally attempted to list every child with a defect of the bones or muscles, regardless of whether this was sufficient to be a real handicap, including, for example, children whose only defect was a slight case of rickets or the loss of a finger. In this survey, however, it was deemed better to make a more intensive study of those children who were so crippled as to interfere seriously with their education or work, and to assist as far as possible in providing proper care and education for those who were not already receiving it. This ought to give a picture of the children in the State who are really crippled.

To find all such children, the first step was to divide the State into sixty-one districts, for each of which a visitor of the staff of the Department of Public Welfare was made responsible. In each district these visitors organized a campaign to secure the names of all crippled children. That the survey was to include only children who might be considered really crippled was made clear by the adoption of the following definition: "A crippled child, for the purpose of this survey, is one who does not have the normal use of bones or muscles for education or work."

In each district the public and private schools were first canvassed. School superintendents, teachers, school physicians and nurses were asked to make up lists of all crippled children who were in the schools or who were known to them. Social agencies, hospitals, institutions, clinics and all such sources of information were sought out by the visitors, and enough timely publicity was given to their efforts to secure as complete a list as would be possible without a house-to-house canvass. When the lists for a district were completed, the field investigator and her assistant made home visits to those children for whom they could not get sufficient information from doctors, school nurses and local nursing and other organizations, and secured the facts about the case called for by the following schedule:

THE COMMONWEALTH OF MASSACHUSETTS.

DEPARTMENT OF PUBLIC WELFARE

Survey of Crippled Children

Name .....Sex.....Color.....Age.....
Residence .....Date of Birth.....
Father's name.....Occupation.....
Mother's name.....Occupation.....
Date .....Reported by.....
DISABILITY APPEARS TO BE.....Duration.....
Involving .....
Cause .....
Permanent .....Improvable.....Temporary
Progressive .....
Ambulatory (with) (without) support.....
Defective—sight .....hearing.....(Specify kind) speech.....
Has .....attended school. Grade.....
Able to attend public school { Physically ..... / Mentally .....
Receiving { Treatment .....How long..... / Education .....How long.....
Why not .....
(Reverse side of schedule)
Present treatment adequate?.....
Can family provide for.....Treatment.....Education.....
Support .....
Probable economic future under appropriate care and education.
Good .....Fair.....Unpromising.....
Remarks:
Date Examined by

The extent to which a child must be crippled to be included in such a survey must depend somewhat upon the judgment of the investigator. An investigator possessing the necessary degree of judgment was found in Miss Margaret MacDonald, a highly skilled orthopedic nurse with long experience at the Industrial School for Crippled Children, the Massachusetts Hospital School and the Boston Children's Hospital. Miss MacDonald was also qualified to assist certain cases in obtaining further treatment or education.

The lists of children submitted by the district visitors were found to include many children who were not within the scope of the survey as above defined. For example, in a city of about 120,000 population, 406 cases were reported to the district visitors by the agencies above mentioned. The

[1]Acts of 1929, Chapter 146, Item 522A.—For an investigation and survey to ascertain the number of crippled children in the Commonwealth who are not receiving the benefit of treatment at the Massachusetts Hospital School.

Acts of 1930, Chapter 115, Item 559.—For an investigation and survey to ascertain the number of crippled children in the Commonwealth who are not receiving the benefit of treatment at the Massachusetts Hospital School.

Acts of 1930, Chapter 426, Item 558.—The appropriation made in Item 559 of chapter 115 of the acts of the present year is hereby made available for the Department until the general appropriation act for 1931 is enacted, and the report upon said investigation shall be filed with the Clerk of the House of Representatives on or before December first of the present year and printed as a legislative document.

investigator found that of these only 217 should be included in this survey. Of the 189 which were excluded, 37 had recovered from their crippling diseases, 32 were not cripples within the definition of the survey, 12 were over twenty-one years of age, 8 had moved out of the State, 12 had died, 19 duplications, and 69 could not be located.

In order to have the decision as to whether or not the children should be included in the survey made uniformly by one investigator, it was necessary to extend the study over a longer period of time than would have been the case if we had been willing to rely upon less careful and uniform standards of decision. Up to November 1, 1930, it has been possible to cover approximately three-fourths of the children reported, and among these children, 4,135 were found who were seriously enough handicapped to be included in this survey. In regard to these 4,135 children, a few of the significant facts are presented in this preliminary report.

SEX AND AGE

Of the total number of children studied, 55 per cent. were boys and 45 per cent. girls. Approximately 13 per cent. were of preschool age, 66 per cent. were of school age under sixteen, and 20 per cent. were between sixteen and twenty-one years of age.

DIAGNOSES

The principal causes for the crippling conditions of the children reported in the survey to date were found to be infantile paralysis, bone and joint tuberculosis, spastic and obstetrical paralysis, and congenital deformities. Other causes were osteomyelitis, deformities due to accident, progressive muscular dystrophy and arthritis.

STATE OF DISABILITY

In the 4,135 cases reported, the conditions were regarded to be as follows:

1,531, or 37.02 per cent., improvable.
382, or 9.24 per cent., temporary.
Of these 382 cases:
348, or 91 per cent., temporary.
34, or 9 per cent., temporary, with treatment.
1,945, or 47.04 per cent., were regarded as children who would always have some disability.
Of these 1,945 cases:
578, or 30 per cent., slightly handicapped.
809, or 41 per cent., moderately handicapped.
558, or 29 per cent., markedly handicapped.
150, or 3.63 per cent., apparently bound to get worse.
127, or 3.02 per cent., state of disability not ascertained.

TREATMENT

Of the 4,135 cripples reported:

2,566, or 62.06 per cent., were receiving treatment.
1,569, or 37.94 per cent., were not receiving treatment.

The 2,566 receiving treatment were distributed according to age and nature of treatment, as follows:

430, or 16 per cent., were of preschool age, the nature of treatment being:
283, or 66 per cent., in clinics.
104, or 24 per cent., in institutions other than hospitals.
39, or 9 per cent., privately.
4, or 1 per cent., in hospitals.
1,731, or 68 per cent., were of school age, the nature of treatment being:
865, or 49.97 per cent., in clinics.
534, or 30.85 per cent., in institutions other than hospitals.
301, or 17.39 per cent., privately.
31, or 1.79 per cent., in hospitals.
405, or 16 per cent., were 16 to 21 years of age, the nature of treatment being:
139, or 34.32 per cent., in clinics.
179, or 44.19 per cent., in institutions other than hospitals.
82, or 20.25 per cent., privately.
5, or 1.24 per cent., in hospitals.

Of the 1,569 not receiving treatment, there were 109, or 6.95 per cent., whose parents had been advised by physicians that there was nothing which could be done to better the physical condition of the child; 324, or 20.65 per cent., had never had any treatment; and 1,136, or 72.40 per cent., had had previous treatment; 722 were not considered by the investigator to be at present in need of treatment; and 738 were in need of treatment.

Of the 738 considered now in need of treatment:
77, or 10.44 per cent., were of preschool age.
551, or 74.66 per cent., were of school age.
110, or 14.90 per cent., were 16 to 21 years of age.

EDUCATION

Of the 4,135 children included in this report, 3,587, or 86.70 per cent., were between the ages of 6 and 21 years. Of this number:

2,808, or 78.28 per cent., were receiving education.
779, or 21.72 per cent., were not receiving education.

There were found 268 children in their homes unable to attend school because of physical disability who were mentally promising. Of these, 51, or but 19.3 per cent., were receiving home teaching.

The 2,808 children receiving education were distributed according to age and grade as follows:

2,330, or 82.98 per cent., were of school age,—6 to 16,—and of these:
19, or 0.82 per cent., were in kindergarten.
1,647, or 70.69 per cent., were in the grades.
104, or 4.46 per cent., were in high school.
6, or 0.26 per cent., were in trade school.
4, or 0.17 per cent., were in continuation school.
498, or 21.37 per cent., were in institutions and receiving education.

10, or 0.43 per cent., were receiving vocational training.
40, or 1.72 per cent., were being taught at home.
2, or 0.08 per cent., rejected.

478, or 17.02 per cent., were from 16 to 21 years of age, and of these:
103, or 21.55 per cent., were in the grades.
185, or 38.70 per cent., were in high school.
3, or 0.63 per cent., were in continuation school.
10, or 2.10 per cent., were in trade school.
32, or 6.69 per cent were in advanced school.
96, or 20.08 per cent., were in institutions.
32, or 6.69 per cent., were in vocational school.
6, or 1.26 per cent., were in private school.
11, or 2.30 per cent., were receiving home teaching.

Of the 779 not receiving education:

412, or 52.87 per cent., were of school age, to 16.
367, or 47.13 per cent., were from 16 to 21 years of age.

Of those of school age:

181, or 43.93 per cent., were either mentally or mentally and physically unable to attend.
169, or 41.02 per cent., were physically unable; 37, or 21.89 per cent., of these were temporarily unable, but expected to return to school soon.
2, or 0.49 per cent., were not attending because parents felt it unsafe for them to attend public school.
4, or 0.98 per cent., refused to attend.
12, or 2.91 per cent., reason not reported.
44, or 10.67 per cent., had not reached their sixth birthday at the opening of school.

Of the 367, aged 16 to 21 years, not receiving education:

82, or 22.34 per cent., were either mentally or mentally and physically unable to attend public school.
48, or 13.18 per cent., were physically unable; 7, or 14.58 per cent., of these were temporarily unable.
224, or 61.04 per cent., were over 16 and had either completed their education or had left school; 104, or 46.42 per cent., of these were working.
1, or 0.27 per cent., was not attending school or working because of apprehensive parents.
4, or, 1.09 per cent., refused to continue in school.
1, or 0.27 per cent., because of lack of transportation.
7, or 1.91 per cent., reason not reported.

These few facts are presented merely to indicate what may be the value of the final report, and to urge that an extension of time will enable us to procure this information for all crippled children in the State. Many other significant tabulations and conclusions of fact can be obtained from the schedules of investigation and presented in the final study for the entire number of children. This would enable us, we believe, to present a more complete and detailed picture of crippled children than any survey which has yet been made.

During the progress of the survey, the Legislature of 1930 enacted a law which will be of much use in perpetuating this work in behalf of crippled children. Chapter 368 of the Acts of 1930 requires cities and towns to make an annual census of crippled children, under the supervision of the Departments of Education, and Public Welfare. This should in the future prevent crippled children from escaping unnoticed when they are in need of treatment or education. Merely to perpetuate this survey, as this act has done, is a great forward step. In addition, the law provides for home teaching of crippled children in towns where there are five or more so crippled as to make attendance at a public school not feasible and who are not otherwise provided for. The organization of these classes and the approval of the home instruction in each instance is to be approved by the Departments of Education and Public Welfare. This provision will give an opportunity for the two departments to develop a system of special education and social service to meet the needs of crippled children. For the sake of securing the necessary information to guide the departments in this supervision, the completion of the present survey is essential. The individual reports have already proved of the most definite value in providing the necessary information about the children who have been listed by the towns for home teaching, subject to the approval of the departments. If the initial complete State-wide survey can be completed at this time, it will make much easier for the cities and towns the work of carrying on the required annual surveys.

The legislation of 1930 seems to us sufficient for the present. In another year, if its operation points to necessary changes, they can be recommended by the supervising departments. The value of the present survey will lie in the complete discovery of the facts about crippled children, and in the establishment of a system of case work to provide for all those who need further care and treatment.

Respectfully submitted,

RICHARD C. CABOT, *Chairman*,
W. LLOYD AYCOCK,
GEORGE P. O'CONOR,
JAMES WARREN SEVER,
Advisory Committee.

RICHARD K. CONANT,
Commissioner of Public Welfare.

APPENDIX A

THE COMMONWEALTH OF MASSACHUSETTS

In the Year One Thousand Nine Hundred and Thirty-One.

Resolve relative to the Report of the Investigation and Survey to ascertain the Number of Crippled Children in the Commonwealth who are not receiving the Benefit of Treatment at the Massachusetts Hospital School.

Resolved, That the time within which the department of public welfare, authorized by item five hundred and fifty-eight of chapter four hundred and twenty-six of the acts of nineteen hundred and thirty to make an investigation and survey to ascertain the number of crippled children in the commonwealth who are not receiving the benefit of treatment at the Massachusetts hospital school, is required to file its report is hereby extended to the first Wednesday in June in the year nineteen hundred and thirty-one.

MISCELLANY

THE NATIONAL SOCIETY FOR THE PREVENTION OF BLINDNESS

Elihu Root has been elected Honorary President of the National Society for the Prevention of Blindness, the post having been made vacant by the death of the late William Howard Taft, who had been Honorary President from the beginning of the Society in 1915 until his death last March.

The publication, beginning next month, of a quarterly magazine, *The Sight-Saving Review*, devoted to all aspects of prevention of blindness and conservation of vision, has also been announced. Mr. Lewis H. Carris, Managing Director of the Society, is Editor and Miss Isobel Janowich is Managing Editor. The following have accepted membership on the Editorial Board:

Miss Mary Beard, R.N., Assistant Director, Rockefeller Foundation, New York City.

Dr. E. V. L. Brown, Professor of Ophthalmology, Rush Medical College, Chicago, Ill.

Dr. A. J. Chesley, Health Commissioner of the State of Minnesota, St. Paul, Minn.

Mr. C. L. Close, Manager, Bureau of Safety, Sanitation and Welfare, United States Steel Corporation, New York City.

Miss Gladys Dunlop, Supervisor of Braille and Sight-Saving Classes of Michigan, Detroit, Mich.

Dr. Edward Jackson, Emeritus Professor of Ophthalmology, School of Medicine, University of Colorado, Denver, Colo.

Mr. A. B. Meredith, Ph.D., Professor of Education, New York University, New York City.

Dr. C. O. Sappington, Director, Industrial Health Division, National Safety Council, Chicago, Ill.

Dr. William F. Snow, General Director, American Social Hygiene Association, New York City.

Dr. William H. Wilmer, Director, Wilmer Ophthalmological Institute, Johns Hopkins University, Baltimore, Md.

Dr. Thomas D. Wood, Director of Health Education, Teachers College, Columbia University, New York City.

THE WALTHAM DISTRICT NURSING ASSOCIATION

For many years this association has supplied night nursing as well as visiting nursing. During the current year nurses will also be furnished for either day or night nursing or in pairs for day and night nursing where there is need of continuous service. These nurses will each have had two full years of training in the medical, surgical and obstetrical wards of the Waltham Hospital as well as in the Baby Hospital. In the patients' homes, where their nursing is now offered, they will serve under the visiting supervision of an Instructor in home nursing who will make sure that their service is in every way satisfactory to the families and physicians.

Where a nurse is needed for more than six weeks a change of nurses will be necessary, and no nurse shall be called to serve for more than half of any twenty-four hours.

The charge for every twelve hours' nursing will be $4.00, except that where more than one nurse is employed in the same family the charge for each extra nurse will be $3.00.

Where preferred, board and lodging will be provided by the Association at an extra charge of $1.00 per day plus the nurse's traveling expenses to and from the Waltham Training School for Nurses. There will be no charge for laundry beyond the expense of its transportation.

Nurses may be summoned and engagements may be made by calling the Association's agent at the Training School, Waltham 0120.

THE CAUSE OF GINGER PARALYSIS IDENTIFIED

This paralysis, which has afflicted thousands of victims, is not caused by ginger at all, according to a recent release by the United States Public Health Service, but by tri-ortho cresyl phosphate. This chemical is the main constituent of technical tricresyl phosphate, which is widely used in trade circles, especially in the manufacture of varnishes, shellacs, and similar preparations. Being cheap and readily obtained in any quantities, it appears to have been used by irresponsible makers of so-called ginger extract to replace the ginger. There seems to be no question that the adulterated paralytic ginger extract contained tri-ortho cresyl phosphate in an approximate concentration of about two per cent.

The United States Public Health Service has been working on the public health aspects of "Jake paralysis" since the wide appearance of this condition in certain sections of the country last Winter and Spring. In attacking the problem, it soon became evident to investigators that they were

dealing with a new form of paralysis and one in which many possibilities were involved. As the investigations proceeded, it became evident that some form of phenol was the causative agent. Soon attention was centered on technical tricresyl phosphate. Chemists of the Prohibition Bureau had found similar substances in suspected extracts. As a number of different chemicals enter into the manufacture of this commercial product, it became necessary to separate them and find out what effect each might have if used in a beverage. This has been done and it has been found that tri-ortho cresyl phosphate, either itself or in combination with other chemicals of harmless nature, when given to various kinds of animals will produce exactly the same kind of paralysis as that caused by drinking "Jake." The Public Health Service has no record of a single case of paralysis caused by ginger preparations manufactured by reputable pharmaceutical concerns. Tri-ortho cresyl phosphate is, therefore, definitely established as the specific cause of the cases of so-called "ginger paralysis".

Studies conducted on laboratory animals show conclusively that a paralysis of the extremities can be produced uniformly in monkeys and other animals by the injection under the skin or by oral administration of the chemically pure as well as the technical tri-ortho cresyl phosphate. The failure to produce any symptoms, whatever, in monkeys with enormous doses of this poison given by mouth indicates that it is practically not absorbed from the intestinal canal in that species.

The precise reason for including this remarkable substance as one of the ingredients of a substandard fluid extract of ginger made and sold for beverage purposes will probably never be known, unless a confession is wrung from the guilty ones. It seems entirely reasonable, however, to suppose that it was included on account of its physical or other properties which make it difficult to distinguish from the normal ginger constituents. Only a chemist of considerable ability could have thought of this; and had there been anything known about the pharmacologic action of this substance and the possible dire consequences, it is probable that it would never have happened. From this the question naturally arises as to whether there are not many other organic compounds of great medicinal interest, perhaps some with great possibilities for the treatment of disease, awaiting the attention of investigators.

CORRESPONDENCE

ARTICLES ACCEPTED BY THE AMERICAN MEDICAL ASSOCIATION COUNCIL ON PHARMACY AND CHEMISTRY

535 North Dearborn St., Chicago, Ill.
December 27, 1930.

Dr. W. P. Bowers, Managing Editor,
The *New England Journal of Medicine*,
165 Newbury St.,
Boston, Mass.

Dear Doctor:

In addition to the articles enumerated in our letter of November 29 the following have been accepted:

Cutter Laboratory
- Oak Pollen Extract-Cutter; Western Ragweed Pollen Extract-Cutter; Western Water Hemp Pollen Extract-Cutter

Gane & Ingram, Inc.
- Ephedrine Hydrochloride
- Ephedrine Sulphate

Lederle Laboratories, Inc.
- Diphtheria Toxoid, ten immunization treatment packages
- Diphtheria Toxoid, fifteen immunization treatment packages
- Tetanus-Gas Gangrene Antitoxin (Lederle)
- Gas Gangrene Antitoxin (Polyvalent) Refined and Concentrated without Tetanus Antitoxin (Lederle)

Mead Johnson & Co.
- Mead's 10 D Cod Liver Oil with Viosterol

National Drug Co.
- Diphtheria Toxin-Antitoxin Mixture (Diphtheria Prophylactic) one hundred and fifty 1 cc. vial packages
- Diphtheria Toxoid, five (three dose) immunization treatment packages
- Diphtheria Toxoid, fifty (three dose) immunization treatment packages
- Diphtheria Toxoid, one (two dose) immunization treatment packages
- Diphtheria Toxoid, five (two dose) immunization treatment packages
- Diphtheria Toxoid, ten (two dose) immunization treatment packages
- Diphtheria Toxoid, fifteen (two dose) immunization treatment packages
- Diphtheria Toxoid, fifty (two dose) immunization treatment packages
- Schick Test
- Schick Test Control
- Tuberculin Old (Human)

Parke, Davis & Co.
- Parke, Davis & Co.'s Viosterol in Oil 250 D
- Parke-Davis Cod-Liver Oil with Viosterol 10 D

Winthrop Chemical Co., Inc.
- Winthrop Viosterol in Oil 250 D

Yours truly,
W. A. PUCKNER, *Secretary*,
Council on Pharmacy and Chemistry.

RECENT DEATH

KRUMWIEDE—DR. CHARLES KRUMWIEDE, professor of hygiene and bacteriology at New York University, and assistant director of the New York Health Department's research laboratory, recently died in Bronxville, N. Y., at the age of fifty-one years.

Dr. Krumwiede was born in New York in 1879, received his A.B. degree from Columbia in 1902 and

his medical degree from the College of Physicians and Surgeons in 1905. At one time he served on the teaching staff of Bellevue Medical College and of the New York University College of Dentistry.

OBITUARY

DANIEL THOMPSON BUZZELL, M.D.

The medical profession of Massachusetts sustained a real loss with the passing, on December 21, 1930, of Dr. Daniel Thompson Buzzell, one of the last remaining of the old school of general practitioners, at his home in Wilmington.

Dr. Buzzell was for 45 years the tireless and conscientious family doctor to a widely scattered rural community, for many of these years, notably at the outset of his career, the townspeople's only reliance in time of sickness. Setting up as a practitioner in Wilmington when conditions were typical of the old-fashioned country life, he spared himself nothing of the privations and hardships that were the lot of that rapidly vanishing fraternity—the country doctor.

He was born in Lee, New Hampshire on April 19, 1857; attended Northwood Academy, Northwood Ridge, N. H., and received his medical degree at the University of Vermont Medical School in 1883. He practiced in Dorchester one year and then went to Wilmington to settle in 1885. In that year he received his first appointment as agent of the Board of Health, an office which he held until his death. He married Mary Louisa White of Wilmington, who with one son, survives him.

Dr. Buzzell was a member of Delta Mu chapter of Nu Sigma Nu fraternity, and of the Eastern Middlesex District Medical Society, of which he was a past president.

He was one of those happily constituted practitioners whose lot it is to bring cheer into the sick chamber; a living embodiment of the truth "A Merry Heart Doeth Good Like A Medicine." He had an exceptional gift of observation, and a sense of humor which, no less than his great devotion to his patients, made him a much loved figure in the community. During the past year his health required that he give up practice to a certain extent—but it was characteristic of him that even in his last days he gave freely of his strength to his patients and friends.

NOTICES

RADIO MESSAGES

Courtesy WBZA

SPONSORED BY THE STATE DEPARTMENT OF PUBLIC HEALTH

Every Wednesday at 5.20 P. M.

Program ending February 25, 1931.

January 7—"Health Experiences in 1930", Dr. George H. Bigelow.

January 14—"Weighing and Measuring School Children", Professor C. E. Turner.

January 21—"Ultraviolet Light", Dr. J. W. M. Bunker.

January 28—"Colds", Dr. Wilson G. Smillie.

February 4—"Infantile Paralysis", Dr. William Aycock.

February 11—"Heart Disease", Dr. Richard Cabot.

February 18—"Age and Cancer", Dr. Shields Warren.

February 25—"The Laboratory in Medicine and Surgery", Dr. William A. Hinton.

The Department of Public Health will tell the radio audience about its various activities every Friday—12:30 to 12:40 P. M.

"Health Forum"

Directed by the State Department of Public Health. Courtesy WEEI every Friday at 4:50 P. M. Queries and Answers will be broadcast.

Questions on health and prevention of disease may be sent to:—"Forum", State Department of Public Health, State House, Boston, Mass.

REMOVAL

David Belford Stearns, M.D., announces the removal of his office to 471 Commonwealth Avenue, Boston, Mass.

MEDICAL CLINIC AT THE PETER BENT BRIGHAM HOSPITAL

At 3:30 P. M., on Thursday, January 15, in the Amphitheatre of the Peter Bent Brigham Hospital, a medical clinic will be given by Dr. Henry A. Christian, to which physicians are cordially invited. These clinics will be held regularly on Thursday afternoons.

UNITED STATES CIVIL SERVICE EXAMINATIONS

The United States Civil Service Commission announces the following-named open competitive examinations:

Medical Officer
Associate Medical Officer
Assistant Medical Officer
(General Medicine and Surgery)

Applications for the above-named positions will be rated as received by the U. S. Civil Service Commission at Washington, D. C., until June 30, 1931.

These examinations are to fill vacancies in the Departmental Service, Veterans' Bureau, Public Health Service, Indian Service, Coast and Geodetic Survey, and Panama Canal Service.

Full information may be obtained from the United States Civil Service Commission, Washington, D. C., or from the Secretary of the United States Civil Service Board of Examiners at the post office or customhouse in any city.

UNITED STATES PUBLIC HEALTH SERVICE

DECEMBER 17, 1930

A. A. Surgeon Abraham Kaufman. Relieved from duty at Marine Hospital, St. Louis, Mo. and assigned to duty at Marine Hospital, Boston, Mass. December 12, 1930.

Assistant Surgeon E. M. Gordon. Relieved from further duty at Marine Hospital, Chelsea, Mass. and assigned to duty at Hamilton, Ontario. December 12, 1930.

DECEMBER 24, 1930

Medical Director J. W. Schereschewsky. Directed to proceed from Boston, Mass. to Washington, D. C. and return, on or about January 6, in connection with field investigations of cancer. December 22, 1930.

REPORT AND NOTICES OF MEETINGS

NORFOLK DISTRICT MEDICAL SOCIETY

One of the most successful meetings that the Society has held in years was at the Long Island Hospital on October 28, 1930. The Secretary, on behalf of the members of the Society, wishes to thank Commissioner of Institutions Maguire and the Staff of the Long Island Hospital for the very excellent entertainment and program which was provided.

Following an address of welcome by Mr. Maguire an operative clinic was conducted by Dr. Channing Swan, Dr. Charles Lund, Dr. Charles Swan, and Dr. Richard I. Smith. Following an enjoyable dinner, Dr. E. W. Taylor presided at an evening clinic. The following papers were presented:

Reduction of Fractures by Rhythmic Traction with Apparatus, Dr. Robert Soutter.

Intracistern Serum Treatment of Neurosyphilis, Dr. Henry R. Viets.

Correction of Knee Flexion Deformities, Dr. Robert Morris.

Fracture of Hip in Aged and Debilitated, Dr. Thomas Peterson.

Uroselectan, Dr. A. S. MacMillan. Discussion, Dr. Channing Swan.

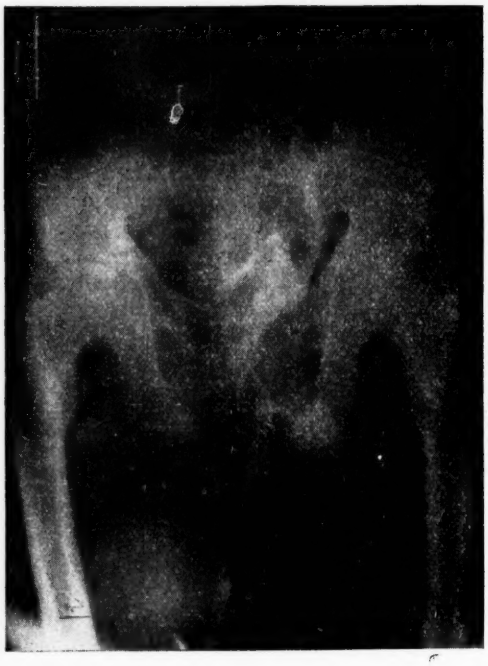
Pathological Demonstration, Dr. I. B. Akerson.

Papers abstracted by the authors are herewith presented.

ABSTRACT OF REMARKS OF DR. CHANNING SWAN

Following Dr. E. W. Taylor's introductory remarks Dr. Channing S. Swan said: "I am not going to talk about Perineal Prostatectomy or Bladder Tumors. I had expected to do a perineal prostatectomy for you, but as the program showed the time from your arrival until dinner time was to be so short, I did the prostatectomy this afternoon. I have here the specimen (prostate) which I removed.

"However, there is another case which seems of diagnostic interest. A man 51 years old came into the hospital complaining of incontinence of four months' duration; hematuria and dysuria of three months' duration. Examination revealed no masses



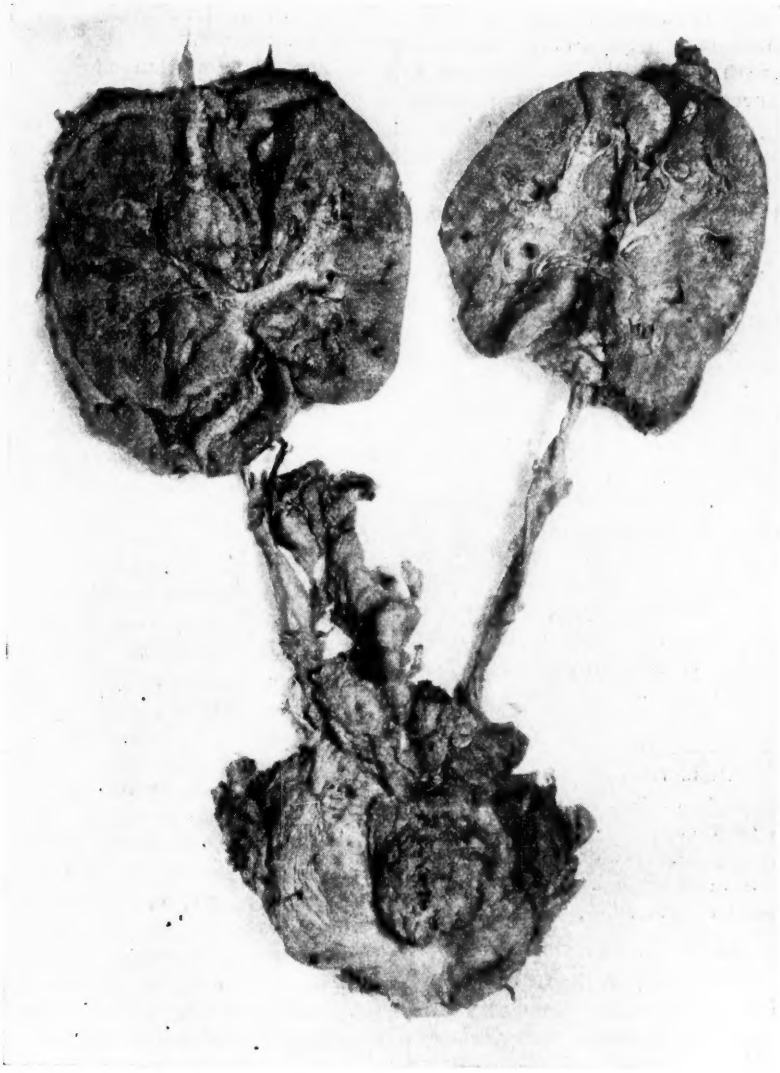
Cystogram: Bladder Tumor.

or tenderness in the region of the kidneys, and the prostate was not definitely enlarged by rectum. There was suprapubic tenderness and spasm, but no mass felt. A cystoscope could easily be passed but not enough fluid could be gotten into the bladder to visualize anything. A cystogram showed a marked filling defect in the bladder and a dilated right ureter up which some of the fluid had refluxed.

"Intravenous urography by uroselectan fails to aid in the diagnosis, in that the only shadow that is cast appears on the films taken 2½ hours after injection. This is an inconclusive faint shadow, in the region of the left kidney pelvis and upper ureter. However negative findings by this test sometimes have positive interpretations, in that they indicate severe renal damage and therefore greatly reduced eliminating power of the kidneys. This I believe is the situation in this case. As the patient is obviously very sick, and has an N. P. N. of 260 milligrams I do not know if we will be able to accomplish anything, but I thought you would be interested in seeing us open the bladder for diagnosis in this case, following which we will probably have to do a nephrostomy to give proper kidney drainage. The most likely diagnosis is bladder tumor, though a large intravesical prostate may also be considered."

NOTE: On arrival in the amphitheatre it was

found that the patient, who had been given a spinal anesthesia and draped for operation, was in too poor condition to warrant any surgery being done upon him. He was therefore returned to the ward, where he died several hours later. Postmortem examination revealed a malignant tumor of the bladder, the size of a hen's egg, obstructing the left ureteral orifice. There were also bilateral hydroureters, bilateral hydronephrosis, and multiple abscesses in both kidneys.



Autopsy specimen showing large bladder neoplasm, bilateral hydroureters, bilateral hydronephrosis, and multiple abscesses in both kidneys.

ABSTRACT OF PAPER BY DR. ROBERT SOUTTER

I should like to present to you a method of reducing fractures by intermittent traction with countertraction, the traction being gradually increased to the maximum required for the reduction of a fracture of that part of the body. The amount of pull is regulated by a spring balance. For instance, in reducing a supracondylar fracture of the elbow, in a muscular man, traction of about 5 pounds is applied for three minutes. This is gradually and rhythmically increased to 15 pounds which is allowed to remain for ten or fifteen minutes. The traction is applied, as you see, on this patient with the elbow flexed at right angles, traction being on the upper part of the forearm which is well padded, countertraction by this band on the chest.

In operating on an elbow fracture, by the open method, traction and countertraction increased rhythmically from 5 pounds to 15 pounds and continued at 15 pounds for fifteen minutes will give full relaxation of the muscles for six minutes. The spring balance measures the exact pull. During this period of relaxation the fracture may be manipulated with ease. If a satisfactory position is not obtained in this period, the maximum pull of 15 pounds is reapplied for ten minutes. At the end of ten minutes the muscles are relaxed again for six

minutes more. This process may be repeated indefinitely until a satisfactory reposition of the bones is obtained.

For fractures of both bones of the forearm, traction is placed on the wrist by using a Delbet knot and countertraction on the lower end of the humerus which is well padded. The spring balance is used and traction is applied up to 10 pounds for ten minutes, rhythmically increased from 2 pounds up. The maximum of 10 pounds is maintained for ten minutes and while it is maintained the finger manipulates the bones into place and the fracture dressing is applied with full traction on. As soon as the traction is removed, an internal angular splint fixes the elbow.

Since using this method, I have not had to do an open operation on both bones of the forearm where the fracture could be maintained by end to end apposition.

We use traction and countertraction in the same way applied to the leg. The Delbet knot is applied to the ankle and countertraction to the perineum of the same side. The perineum should be well padded.

For fractures of the femur above the condyle, countertraction is applied to the opposite perineum which should be well padded and abduction of this leg is prevented by fastening the leg above the knee with a strap or sheet to the opposite side of the operating table. The same apparatus is used and a scale measures the traction to 50 pounds. For femur fractures in extremely muscular patients, we have used 75 to 100 pounds, applied for twenty minutes. For the lower leg it is rarely necessary to use more than 25 pounds for half an hour and then reduction is possible.

I have used this method for over twenty years with a great deal of satisfaction. A great many surgeons from various parts of the country who have seen this apparatus now use it. This method facilitates the reduction of all fractures, whether an open or closed operation is necessary and many difficult ones can be easily reduced.

ABSTRACT OF PAPER BY DR. HENRY R. VIETS

Dr. Viets spoke of the use of Swift-Ellis blood serum in the treatment of cases of neurosyphilis. The serum, taken after intravenous treatment with arsphenamine, is put into the cistern a day or two later. At the time of each injection, cerebrospinal fluid is taken for testing and by following the progressive decrease in the positive tests, an exact check upon the serology of the disease is obtained. (Charts were shown of six patients treated over a period of years, from 6 to 18 treatments having been given each individual.) In all cases the spinal fluid was made negative and in some of the patients under a longer period of observation it has remained so from one to five years. The treatment was advocated for certain types of neurosyphilis and it has a distinct advantage in that it can be given in a physician's office and does not necessitate hospitalization of the patient.

ABSTRACT OF PAPER BY DR. THOMAS H. PETERSON

One of the most fatal of all fractures is the fracture of the neck of the femur seen in elderly people. The treatment of this type of patient is very difficult. The reasons for the high mortality rate are:

1. The shock of the injury may be severe. It is definitely known that fractures of the femur are more shocking than any other fracture in long bones.

2. The position of the apparatus necessarily limits activity to a great extent and may lead to hypostatic pneumonia.

3. The manipulation may be severe enough to prove fatal.

4. The condition of the patient may prevent the utilization of anesthesia in reduction of the fracture.

5. Nursing care is a great problem with the average form of apparatus due to the proximity of the apparatus to the perineum.

6. Coöperation is essential in these people, and old people may not have the ability to lend the necessary aid.

The treatment of these patients calls for the reduction of the fracture. The method as described by Dr. Royal Whitman has been used namely: traction of the leg to recover the length of the leg. Abduction of the leg is necessary to produce an impingement of the trochanter on to the superior lip of the acetabulum thereby preventing a recurrence of the deformity. Internal rotation of the leg is produced to get an accurate apposition of the fragments and to correct the tendency to outward rotation.

Traction is applied by means of the traction apparatus described by Dr. Robert Soutter, the countertraction in the reduction being applied to the tuberosity of the ischium, on the opposite leg by means of a well-padded webbing belt. The uninvolved leg, that is the leg to which countertraction is applied, is prevented from abducting by holding it in place with a sheet tied to the operating table on the side nearer to the fracture. The traction on the fractured leg is secured by means of the Delbet knot. The traction in these people is ordinarily applied prior to the administration of the anaesthesia. Ordinarily 50-75 pounds traction is applied for a period of 30 minutes. At the end of that time in most elderly people the shortening has been corrected and anaesthesia may be started.

If the anaesthesia has been given, abduction is gradually carried out during the period of traction. Pressure is applied to the trochanter to assure close apposition of fragment.

It is essential to have anaesthesia during the period in which the leg is abducted because this is the most painful period in the manipulation. Only primary anaesthesia is necessary.

Internal rotation is now carried out in order to correct the deformity of external rotation and to produce a contact of the raw bone edges.

At this point the usual method of procedure is the application of a cast or a splint. In this we have been inclined to differ particularly in the old and debilitated. We have substituted an abduction bar

as designed by Professor Wilkey of Edinburgh, which holds both legs equally abducted.

The abduction bar is a sliding bar which can be shortened or lengthened according to the needs of the individual patient. At each end of the bar is a cuff made of metal 2 inches wide and six inches long. The bar is bent at an angle of fifteen degrees at each end close to the attachment of the cuff and therefore fits better the contour of the ankles when the legs are held in the abducted position.

The bar is fitted in an ankle plaster which is well padded and the cast is applied to the foot and leg to within four inches of the knee. The cast is applied to the affected leg with the leg held in inward rotation to correct the deformity caused by the fracture.

The good leg is abducted thereby fixing the pelvis and preventing the slipping up of the distal fragment, avoiding a recurrence of the deformity. The cuff is held to the good leg by means of a bandage after the ankle has been sufficiently padded.

The patient now lies with both legs in an abducted position the affected leg held in an abducted position by means of a plaster boot, the other end held to the apparatus by an ordinary bandage.

The advantages are worthy of consideration.

First, the fragments are held in apposition so that union may occur without deformity.

Second, the apparatus may be quickly and easily applied thereby shortening the time of anaesthesia.

Third, activity of the patient is encouraged and outside of the discomfort of the abducted position their activity is liberal. They may be allowed to sit up after a few days during convalescence with the apparatus on.

Fourth, nursing care is not so extensive or urgently needed in this type of apparatus as in some others.

Fifth, in very uncoöperative patients the chances of pressure sores is less because of the simplicity of apparatus.

ABSTRACT OF PAPER BY DR. A. S. MACMILLAN

In 1923 Dr. Osborne recommended the use of sodium iodide, intravenously, as a means of outlining the kidney pelvis, ureter and bladder by x-ray. This was not very successful.

Germany has been using for some time, a preparation called "Neutral-selectan" for the treatment of coccus infections of various types. This contained fifty-four per cent. of iodine and gave a fairly good outline of the urinary tract. There were, however, some disadvantages, such as insolubility, so the formula was changed and a new preparation made containing forty-two per cent. of iodine, which is excreted through the urinary tract within eight hours, practically to the extent of one hundred per cent. It is very stable, non-toxic, non-irritating and neutral in reaction and possesses sufficient contrast to give good detailed pyelographs when the kidney function is within normal limits, or normal. When the kidney function is poor, the concentration of excreted iodide does not reach sufficient density to give satisfactory Roentgenograms.

The technique of administration is practically the same as that for any intravenous medication. X-ray films are taken at the end of fifteen minutes, an hour and a half and three hours.

Intravenous pyelography is particularly useful in patients where it is impossible to catheterize the ureters, or where such an examination is impossible, such as in children or for some mechanical reason.

At the end of this talk, Dr. Swan showed a number of films of various pathological conditions where Uroselectan was used and said that he had come to the conclusion that it would not entirely supplant the use of the cystoscope or injection of the ureters from without.

DISCUSSION (DR. MACMILLAN'S PAPER)
BY DR. CHANNING S. SWAN

I want to show a few x-rays from the Urological Service of the Massachusetts General Hospital, demonstrating the use of uroselectan. These are all

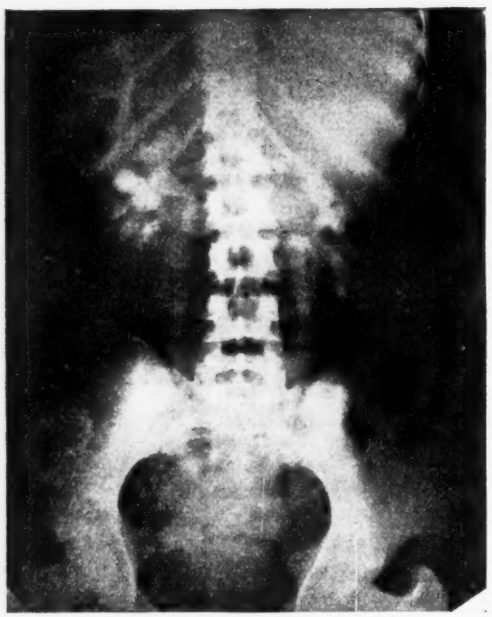
Large Bilateral Hydronephrosis (Uroselectan).

good plates like those shown by Dr. MacMillan, from our service here at Long Island. However I do not wish you to be under the impression that we always get such good pictures by this method. I do not think that of the cases on which we have used this method at the M. G. H. that we have gotten pictures that are of positive diagnostic value in more than 60% of the cases. However in many cases where for one reason or another visualization of the upper urinary tract cannot be made by the usual cystoscopic procedure, uroselectan gives very valuable information, which cannot be obtained by any other method.

My first pictures are of a case of large bilateral hydronephrosis in a patient who had had a prostatectomy elsewhere, two years ago, and had a persistent pain in the back with an N. P. N. of 74 milligrams. We took films visualizing these big sack-like

kidneys, both by the cystoscopic method and uroselectan for comparison. In this case, where there is such a large area for the opaque mixture to fill,

Bilateral Ureterostomy. (Uroselectan.)



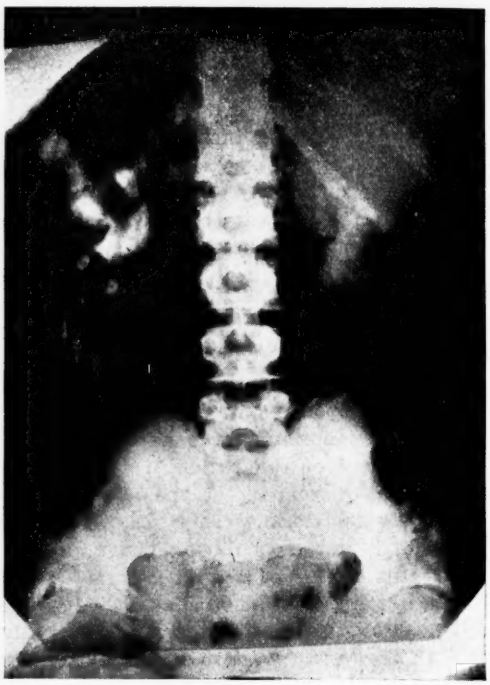
Ureters implanted into bowel. (Uroselectan.)

the intravenous method gives just as dense pictures, as the old method. However this is not the usual result in our hands, uroselectan more often giving a somewhat fainter shadow.

These next plates visualize the upper urinary tract of a patient who had a bilateral ureterostomy for recurrent bladder tumor. They show dilated ureters and renal pelves.

These plates visualize the kidneys, ureters, and lower large bowel of a patient who had the ureters transplanted into the bowel, three years ago, because of a vesico-vaginal fistula, which repeated operation had failed to close. The patient is in good health, she simply made a routine follow-up call at the hospital, at which time these plates were taken.

These last plates were of a case of epispadias and and extrophy of the bladder, with a large branching calculus, filling the pelvis, and calyces of the kidney, and there were three stones in the lower end of the opposite ureter. The plates show that there is no drainage from the kidney containing the large stone because the ureter is not visualized on that side.



Stag-horn calculus shutting off drainage from kidney. (Uroselectan.)

In conclusion, I would say that in uroselectan, we have a method by which we can often visualize the upper urinary tract in cases of congenital deformities, and operative transplantation of the ureters, such as I have shown, also in cases of markedly inflamed bladders in which the ureteral orifices can not be found, and for the same reason in cases of large intravesical prostates, postcystectomy cases, and in children, and others where cystoscopy is contraindicated. However, this method does not in the ordinary cases reveal what there may be in the bladder, i.e., a bladder tumor, etc. Nor does it enable us to get separate functions and sediments from each kidney. I feel that it is an adjunct to, but does not supplant the cystoscopic method of investigation.

NORFOLK DISTRICT MEDICAL SOCIETY MEETINGS

January 27. Dr. W. E. Ladd, Subject to be Announced. Children's Hospital, 8 P. M.

February 24. Dr. F. C. Irving and Staff, "Difficult

Labor Cases and Indications for Interference." Boston Lying-In Hospital, 8 P. M.

March 31. Dr. Arthur W. Allen; Subject to be announced (will deal with circulatory diseases). Hotel Kenmore, 8 P. M.

May —. Annual Meeting; Date and details to be announced.

May 7. Censors' Meeting for examination of candidates at 171 Warren Street, Roxbury, 4 P. M. Candidates for schools on accepted list will forward application with certificate of graduation to the secretary at least one week prior to date of examination. Candidates from schools not on accepted list who have been in practice five years will forward applications together with five letters of recommendation from members in good standing in the Massachusetts Medical Society to Dr. P. P. Johnson, Cabot Street, Beverly, Mass., two weeks prior to date of examination. Fee for all candidates $10.00.

FRANK S. CRUICKSHANK, *Secretary.*
47 Bay State Road.

SOUTH END MEDICAL CLUB

The next regular meeting of the South End Medical Club will be held on Tuesday, January 20, 1931, at 12 noon, at the office of the Boston Tuberculosis Association, 554 Columbus Avenue, Boston.

The speaker will be Frank H. Dunbar, M.D., who will talk on "The Physician and the Laboratory."

The usual luncheon will be served. All physicians are cordially invited to attend.

WORCESTER STATE HOSPITAL

HOSPITAL STAFF LUNCHEONS

January 9—The Problem of Tuberculosis, Alton S. Pope, M.D.

January 23—Neuropathology, Stanley Cobb, M.D.

February 6—Appendicitis, A. R. Kimpton, M.D.

February 20—Progress in Psychiatry, Dean A. W. Stearns.

March 6—Brain Trauma, Timothy Leary, M.D.

March 20—Subject to be announced, Professor W. B. Cannon.

April 3—Subject to be announced, Abraham Myerson, M.D.

April 7—Medical Education, Dean Alexander Begg.

These luncheons are at 12:30 P. M.

CANCER CLINIC IN FITCHBURG

Doctors Greenough, Daland, Meigs, Tripp and the local staff will hold a cancer clinic at the Burbank Memorial Hospital from 2:00 to 5:00 on Thursday, January 15. Also, Dr. C. C. Little will speak on observations made in his recent European trip in regard to trends in cancer work in Europe. Physicians in Worcester North and Franklin Counties are asked to come with or send patients, on whom they desire an opinion, to the clinic. Appointments should be made by telephoning to the Burbank Hospital, Fitchburg 1584.

In the evening there will be a medical meeting at the Hotel Raymond following a six o'clock dinner. All physicians interested are most cordially invited.

FREDERICK H. THOMPSON, M.D.,
Chairman, Worcester North Cancer Committee.

THE NEW ENGLAND ROENTGEN RAY SOCIETY

A combined meeting of the Trudeau Society and The New England Roentgen Ray Society will be held at The Boston Medical Library, Friday night, January 16, 1931, at 8:15.

SCIENTIFIC SESSION

"The Evolution of Pulmonary Tuberculosis in Children as Revealed in the Roentgenogram." Dr. Henry D. Chadwick, Detroit, Michigan.

The usual dinner will be held at the Harvard Club.

DR. T. R. HEALY, *Secretary.*
370 Marlborough Street, Boston, Mass.

BOSTON MEDICAL LIBRARY IN CONJUNCTION WITH THE SUFFOLK DISTRICT MEDICAL SOCIETY

Boston Medical Library—John Ware Hall
Wednesday, January 28, 1931

The Practice of Medicine in Relation to Public Health Activities

1. Municipal Preventive Medicine. Boston's Program. Dr. Charles F. Wilinsky.

2. The Influence of Boston's Health Program on the Practitioner. Dr. Edward F. Timmins.

3. The Boston Health League's Place in Boston's Health Program. Dr. George Cheever Shattuck.

Discussers—Dr. Robert B. Greenough, Dr. Stephen Rushmore, Dr. George H. Bigelow.

HILBERT F. DAY, M.D., *Chairman.*

THE HARVARD MEDICAL SOCIETY

The next meeting of the Harvard Medical Society will be at 8:15 on the evening of January 13 in the Amphitheatre of the Peter Bent Brigham Hospital.

Program:

Presentation of cases.

Paper: Clinical Classification of Nephritis, Dr. Henry A. Christian, Professor of Medicine, Harvard Medical School, Boston.

Physicians, Students, Nurses cordially invited to attend.

WILLIAM P. MURPHY, M.D., *Secretary.*

NEW ENGLAND HOSPITAL FOR WOMEN AND CHILDREN

The regular clinico-pathological conference of the New England Hospital for Women and Children will be held at the hospital, Dimock Street, Roxbury, on Thursday, January 15, at 8 P. M. with the following program. 1. Monthly report on deaths in the institution, by the Resident Physician. 2. Pathological studies on nursery babies, with postmortem findings,

by Dr. Leary. 3. Report of a case of meningitis with sinus thrombosis, with discussion by Dr. Kleinert. 4. Lateral sinus disease, with literature; Dr. Kleinert. 5. Report of a case of dermoid cyst, with operation, on ophthalmological service, by Dr. Johns.

ALICE H. BIGELOW, *Secretary.*

SOCIETY MEETINGS
CONGRESSES AND CONFERENCES

January 9-April 7—Worcester State Hospital, Hospital Staff Luncheons. See page 93.

January 11-March 29—Harvard Medical School. Free Public Lectures. See page 1312, issue of December 25.

January 9—The William Harvey Society. See page 47, issue of January 1.

January 13—The Harvard Medical Society. See page 93.

January 15—Cancer clinic in Fitchburg. See page 93.

January 15—New England Hospital for Women and Children. See page 93.

January 15—Medical Clinic at the Peter Bent Brigham Hospital. See page 87.

January 16—The New England Roentgen Ray Society. See page 93.

January 20—South End Medical Club. See page 93.

January 22—Conference on Mental Hygiene in Industry. See details on page 1316, issue of December 25.

February 2-March 30—Lectures on Keeping Mentally Fit. Given under the auspices of the Massachusetts Division of University Extension and the Massachusetts Society for Mental Hygiene. Boston.

Eight lectures, in the Gardner Auditorium, State House, Boston, Monday evenings, beginning February 2, 1931.

Course Leader: Dr. Henry B. Elkind, Medical Director, Massachusetts Society for Mental Hygiene.

February 2—Keeping Mentally Fit: A New Art and Need of the Times. Joseph Jastrow, Ph.D., Formerly Professor of Psychology, University of Wisconsin.

February 9—The Child Is Father to the Man. James S. Plant, M.D., Director, Essex County Juvenile Clinic, Newark, N. J.

February 16—Fatigue, Worry, and "The Blues." Karl M. Bowman, M.D., Assistant Professor of Psychiatry, Harvard Medical School.

March 2—Do We Americans Really Live? James J. Walsh, M.D., Medical Director, Fordham University School of Sociology, and Professor of Physiological Psychology, Cathedral College, New York City.

March 9—The Job and Mental Health. Elton Mayo, Harvard Graduate School of Business Administration.

March 16—Emotion and Intellect in Adult Life. William B. Terhune, M.D., Austen Riggs Foundation, Stockbridge.

March 23—Normal and Abnormal Fear. Abraham Myerson, M.D., Professor of Neurology, Tufts College Medical School.

March 30—"Nerves"; Their Meaning in Our Lives. E. Van Norman Emery, M.D., Medical Director, Connecticut Society for Mental Hygiene.

February 4-June 3—Cardiac Course. See page 854, issue of October 23.

March 23-27—Fifteenth annual clinical session of the American College of Physicians. Detailed notice appears on page 790, issue of April 17.

May 11-14—Meeting of the National Tuberculosis Association at Syracuse. See page 1310, issue of December 25.

July 27-31—Third International Congress of Radiology, Paris. Complete notice appears on page 385, issue of August 21.

DISTRICT MEDICAL SOCIETIES

Bristol North District Medical Society

April 16—Taunton Woman's Club.

September 17, 1931.

Essex South District Medical Society

Wednesday, February 4—Council meeting, Boston.

Wednesday, February 11—Danvers State Hospital. Clinic at 5 P. M. Dinner 7 P. M. Speaker: Dr. Bryant E. Moulton, Assistant Director of the Judge Baker Foundation. Subject: "Juvenile Delinquency."

Wednesday, March 4—Lynn Hospital. Clinic at 5 P. M. Dinner at 7 P. M. Speaker: Dr. Arthur Allen, of Boston. Subject: "Neurovascular Surgery, including injections for varicose ulcer."

Thursday, May 7—Censors meet at Salem Hospital at 3:30 P. M.

Tuesday, May 12—Annual Meeting. The Tavern, Gloucester. Speaker: Dr. Morris Fishbein, Editor of the A. M. A. Journal of Chicago. Subject: "History of Medical Cults." Ladies invited.

Franklin District Medical Society

January-May, 1931—The meetings are held on the second Tuesdays of January, March and May at 11 A. M. at the Weldon Hotel, Greenfield.

Middlesex East District Medical Society

January 21—See notice on page 1316, issue of December 25.

March 11—At Reading.

May 13—At Wakefield.

Norfolk District Medical Society

January 27-May 7—See page 92.

Norfolk South District Medical Society

The meetings for the ensuing year are as follows:
January 8, February 5, March 5, April 2, May 7.
All meetings begin at 12 noon. The February meeting will be held at the Quincy City Hospital. All other meetings will be held at the Norfolk County Hospital, South Braintree.
The censors will meet on May 7 at 11:30 A. M. at the Norfolk County Hospital, South Braintree.

NATHAN R. PILLSBURY, Secretary.

Suffolk District Medical Society

January 28-April 29—Combined meetings with the Boston Medical Library. These meetings will be held as specified below on Wednesdays, at 8:15 P. M.

January 28—General meeting in association with the Boston Medical Library at the Boston Medical Library. "The Practice of Medicine in Relation to Public Health Activities." See page 93.

February 25—Clinical Program, Boston City Hospital.

March 25—Clinical Program, Beth Israel Hospital.

April 29—Annual Meeting. Election of Officers. Boston Medical Library.

The medical profession is cordially invited to attend all of these meetings.

GEORGE S. DERBY, M.D.,
President, Suffolk District Medical Society.
LELAND S. McKITTRICK, M.D.,
Secretary, Suffolk District Medical Society.
HILBERT F. DAY, M.D.,
Boston Medical Library.

BOOK REVIEW

Bergey's Manual of Determinative Bacteriology. A Key for the Identification of Organisms of the Class Schizomycetes. By DAVID H. BERGEY, assisted by a committee of the Society of American Bacteriologists (Francis C. Harrison, Robert S. Breed, Bernard W. Hammer, Frank M. Huntoon) with an Index by Robert S. Breed. Third Edition, 1930. The Williams & Wilkins Company, Baltimore. Price $6.00.

To assemble such a book as this is a monumental task for even the most zealous committee; but to get out three editions in seven years approaches the realm of the incredible. Moreover, the successive editions have entailed considerable revision and expansion, so that the latest has about a third more pages than the first. Descriptions of more than two hundred organisms have been added. Classification changes include the division of the genus Eberthella so as to give separate genera for the typhoid and the dysentery group.

The usefulness of his manual to the practicing bacteriologist is undoubted, for there is no other available source of the type of information contained herein. A scheme of classification is essential, and this represents the most recent one. Criticisms have been made of it in the past and criticisms will be made in the future, but that is the fate of all classification schemes. It is to be hoped that the work will be continued and that other editions will appear from time to time.